Railroad Age Gazette

Including the Railroad Gazette and The Railway Age

PUBLISHED EVERY FRIDAY BY
THE RAILROAD GAZETTE (INC.), 83 FULTON STREET, NEW YORK.

CHICAGO: Plymouth Bldg. PITTSBURGH: Farmers' Bank Bldg.
LONDON: Queen Anne's Chambers, Westminster.

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Subscription, including regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free:

United States and Mexico.....$5.00 a year
Canada .....$6.00 a year
Foreign Edition, London.....£1 12s. ($8.00) a year
Single Copies.....15 cents each

Entered at the Post Office at New York as mail matter of the second class.

VOL. XLVII., No. 20. FRIDAY, NOVEMBER 12, 1909.

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Some of the trade papers have reported that the Pennsylvania Railroad has ordered a large number of steel gondola cars having a capacity of 70 tons. We are advised by A. W. Gibbs, general superintendent of motive power, that the report is entirely unauthorized, and no cars of this capacity have been designed at Altoona. Mr. Gibbs says further that the gist of the whole subject is, that in designing cars of large cubic capacity for the coke trade it was considered that if these same cars could be fully loaded with coal on their trips to the lake and carry a corresponding weight of ore on the return trip very considerable economies would accrue. The capacity of the two trucks is but 161,000 lbs., depending, primarily, on the axle, and also on other parts of the truck, such as column bolts, arch-bars, springs, etc. As the car itself weighs about 46,000 lbs., this would make the allowable load between 115,000 and 116,000 lbs. The bodies of the cars are strong enough for the heavier load, but until the truck has been entirely redesigned there will be no such cars in service and none has been ordered. Incidentally, it develops that while the main line is now adapted to such cars, considerable reconstruction of some of the branch roads and private sidings would have to be made before such cars could safely be used.

We publish elsewhere an article on a new method of handling claims for loss and damage to freight which has been adopted on the St. Louis & San Francisco. The main features of this plan are that investigations of loss and damage and decisions regarding the liability or non-liability of the company are made, not by the traffic department, as is the case on most roads, but by the operating department; that investigations begin as soon as freight checks over, short or damaged, and are usually done when claims are presented, instead of being begun then; and that special measures are taken to fix responsibility and secure proper disciplining for the carelessness or violations of rules by employees that cause a large proportion of loss and damage. There is much to be said in favor of having loss and damage investigated and liability determined by the operating department. This is the department whose shortcomings cause the trouble; and it is the only department that can effect the needed reforms and improvements. Furthermore, as it does not directly solicit business, the operating department is not so exposed as the traffic department is to pressure by big shippers for rebates in the form of payments of excessive claims. Certainly there is no branch of the railway business which worse needs reform than the usual method of handling freight claims. As Col. H. G. Prout said in an address two years ago: "To the outsider it seems as if the claim department of a railway was a highly efficient organization for obstruction. The desire to ascertain the truth and to help the shipper, or the consignee or the person who has suffered damage or injury, is apparently no part of the duty of the claim department." A system is imperatively needed which will both reduce the amount of loss and damage, and will cause settlement of just claims promptly instead of after almost endless procrastination. Accomplishment of the former end will substantially reduce operating expenses. Attainment of the latter will relieve the roads of a great deal of deserved odium. The management of the St. Louis & San Francisco merits much credit for trying at a good deal of expense a plan designed to accomplish both these important objects. The data given elsewhere indicate that its scheme is working out with gratifying success.

Western railways are showing a slight tendency to increase the number of western men on their directorates. The Alton recently elected Edward Tilden, a packer in Chicago, as a director. J. Ogden Armour and John G. Shedd, of Chicago, have been elected to the Illinois Central board within the last two years. The Chicago & North Western at its last annual meeting superseded two eastern men with two western men. The tendency is a healthy one. The main criticism to be made is that it is not pronounced enough. Too many of the boards of western roads are composed mostly or entirely of eastern men or their dummies. So long as western roads are owned mainly by eastern capital their directorates will continue to be composed mainly of eastern capitalists or their representatives. But there is no good reason why the board of a western railway should be composed entirely or even almost entirely of men living in New York City and New England, and there are several strong reasons why it should not be. The hostile feeling of western people toward railways has been largely due to the belief that they have been run from the standpoint and with an eye exclusively to the interests of eastern owners and in disregard of the interests and rights of the people and the territory that give them their business. In Chicago to-day one hears loud complaints that the main reason why the Illinois Central sees no virtue in the proposed electrification of its terminals is that most of its directors live in New York, where they don't have to stand the smoke from its

engines. If each road had among its directors men of standing in communities scattered along the entire length of its lines there undoubtedly would be less of this unwholesome public sentiment. Nor is it entirely a question of sentiment. Men living in the various communities that a road serves bring into the meetings of its board a knowledge of local conditions as well as of local public opinion that is of real and substantial value in its permanently successful management. Each year the eastern directors of a western road get on a special train with its officers and go for a ride over the main lines. If they take these junkets seriously they fancy that by looking at the track, buildings and country from an observation platform, and perhaps meeting a few newspaper reporters and prominent citizens along the way, they get the atmosphere of the country in which the road is operated. But surely few of them can take such trips very seriously. Those who have enough gumption to be fit to be directors must know that the amount they learn on them is relatively trifling. They must know that the only men who actually get the atmosphere of a big territory are those who breathe it all the time. Unless western roads put more western business men on their directorates they ought to give the officers who are on the ground and actually operate them a much wider discretion to run them as local conditions demand. The belief that most railways in the West and South are run from Wall street is widely prevalent, and the belief is often well founded. They would be operated more satisfactorily to the public and with no less, and perhaps more, profit to their owners if both the changes we have indicated were made—that is, if their directorates were made local, so far as possible, and their organizations so altered as to give division and general officers more authority to deal promptly and finally with many questions arising in their immediate territories.

TITANIUM RAILS.

The extensive use of titanium alloy in the treatment of Bessemer steel in rail manufacture is one of the most promising features in this year's enormous rail production and is next in importance to the large and increasing capacity for open-hearth steel rails. These two improvements in rail manufacture should insure a supply of safer and more enduring rails than the railways have obtained in recent years. The titanium alloy improves the mechanical structure of Bessemer steel, making it more solid, and increases its crushing strength and hardness. This increases the life of the rail by reducing ordinary wear and preventing the flowing and splitting which caused the removal of such large numbers of Bessemer rails.

The New York Central has ordered a large tonnage of rails made from steel treated with titanium alloy, and though the finished product contains no titanium, it will be convenient to call it titanium steel and titanium rail. A dozen eastern railways have also given orders for titanium rails; and in the west the St. Paul, the Burlington, the Santa Fe and the Alton have all given trial orders for them.

Iron ores containing unusual proportions of titanium (of which enormous deposits exist in Essex County, New York, and in Ashe County, North Carolina) cannot be smelted by ordinary blast furnace methods, and this fact has probably created a prejudice against the presence of this metal in iron or steel, and until quite recently prevented its use as an alloy in metallurgical processes. The electric furnace has, however, made it possible to make an alloy of iron and titanium which combines readily with steel and by the reaction purifies and improves its physical properties. The process employed in this manufacture by the Titanium Alloy Manufacturing Co. is covered by patents granted to Aguste J. Rossi, who has made a special study of the subject during the past 30 years.

Titanium has great affinity for nitrogen, and it is now believed that the amount of nitrogen retained in steel is large and thus has an important effect upon the physical properties of the metal. It is natural, therefore, that ferro-titanium should be employed as a flux for cleaning iron and steel at the moment of casting or pouring from the converter, as ferro-silicon and ferro-maganese are employed. Sulphur and phosphorous do not appear to be reduced, but in combining with oxygen and nitrogen forming oxides and nitrides, titanium has an important action in removing impurities, forming a stable combination of them, which passes into the slag.

Thus the principal function of titanium alloy is to act as flux, and the cleansing effect results in increased solidity and purity, which have such an important influence on the mechanical structure of the steel, preventing breaking down under heavy rolling loads and reducing the wear due to abrasion which are the serious defects of ordinary Bessemer rails.

The first experiments with titanium alloy in rail manufacture were made by the Maryland Steel Company in November, 1907, and this was followed in 1908 by the Duquesne Works of the Carnegie Steel Company, the Cambria Steel Company and the Lackawanna Steel Company. During the past year the process passed the experimental stage and has been used in a large number of rails and may be regarded as firmly fixed on a commercial basis.

Ferro-titanium contains 10 to 15 per cent. of titanium, 5 to 7 per cent. of carbon, and of other impurities less than 5 per cent; the balance is pure iron which has been electrically refined. In Bessemer steel rail manufacture it is the practice to add about one per cent. crushed ferro-titanium in the ladle as the steel is poured from the converter.

The equivalent weight of titanium is 0.1 per cent. of the weight of the molten steel poured into the ingot mold, and the additional cost is now about $3.50 per gross ton of rails. It is claimed that this small proportion of ferro-titanium is sufficient to remove the bulk of blow holes and segregation usually found in Bessemer ingots and produce the clean, solid, good-wearing rail we have described.

The results of six months' service on a New York Central cross-over carrying a heavy tonnage show that the flange wear of titanium rails is only one-fourth that of ordinary Bessemer rails, and it is expected that the average service in main line will be as three to one in favor of the titanium rail.

A STUDY IN RAILWAY BONDS.

The returns already indicate that the year 1909 is to be a banner twelvemonth in the sales of bonds at the New York Stock Exchange, which not only sets the pace for other bond markets of the land, but actually represents a great volume of orders coming from those outside markets. Up to the first of October of this year, since January 1, the bond sales were in round numbers, $1,000,000,000, on the basis of par. In the whole year 1908, the highest of previous record, they were $1,085,091,700, indicating that, when the present year is closed, it is almost sure to pass the record by probably not less than $225,000,000. In looking back over the returns of nearly a third of a century the next largest years were 1904, with $1,040,146,000, and the following year, 1905, when they were $1,024,118,000. No other years save the four referred to have crossed the billion mark; and within ten years the sales have sunk as low as $578,253,000 in 1900 and $526,170,000 in the panic year 1907—though the real aftermath of that panic did not come until early in the year after. It should be said that these bond sales are not all sales of railway bonds. But the extremely larger proportion of them are, and it is the railway bond that is elemental both as a measure of the bond market and in the study of bond statistics.

The figures invite study and denote the outworking of a pretty rigid economic law, namely, the recoil of investment

toward conservatism and bonds, following the losses, or at least the shrinkage and alarm coming after panic. The causes of the movement and the reflex action of the investor's mind away from stocks and toward the bond are obvious; but the degree is very striking. Thus in the year following the stringency and depression of 1893-4, with its silver currency complications and "currency famine," the bond sales rose from $355,225,000 (in 1894) and $357,790,000 (in 1893) to $512,821,000 (in 1905). There was a moderate panic—the so-called "Flower" panic—and depression in 1897. Sales that year were $542,243,000. The next year they show the remarkable rise to $916,972,000, or nearly 70 per cent. There was a panic year in 1884, with sales of $517,687,000; the next year they rose to $690,598,000, or more than 33 per cent. But the most remarkable rise, with perhaps the exception of the last year and three quarters, was in the year 1904, following the depression of 1903, with a lift from $685,933,000 to $1,040,146,000, or an increase of about 52 per cent.—not so large in ratio as in 1898, but impressive by its absolutely larger volume and the fact that the increase was not preceded by actual panic but, instead, by slow financial recession during the period immediately preceding it.

Turning from the investment viewpoint to the physical relation of the bond market to railway construction, the returns become much more obscure. It is traceable in an early period and in the large bond sales of $643,867,000 and $470,854,000 in 1880 and 1881, as compared with $291,896,000 and $308,800,000 in 1882 and 1883, respectively, and which show up in 1881 with the large railway addition of 9,846 miles, and follow on—probably as the result of bonds previously marketed—in 1882 with the great railway increment of 11,569 miles. The panic year 1884 was naturally attended with the low addition to railways of 3,923 miles, and in 1893 new mileage also dropped to 2,346 miles, as contrasted with 4,441 miles the year before. But in the decade and a half since then the relation of the bond market to construction is befogged. This is due partly to refunding of old bonds upon an extensive scale; partly to increased factors represented by industrial and street railway bonds; but chiefly to the fact that, especially in the East and the Middle West, new railway bonding has represented improvement rather than extension of railway plants, with liberal allowance for the cost of new terminals. This is further impressively suggested by the increased bondage per mile, which during the decade and a half has risen from $31,408 per mile to $36,671 per mile. Large railway systems like the New Haven have financed many tens of millions of bonds with almost no additions, relatively speaking, of new trackage. The statement is almost a sweeping truism nowadays that east of the Mississippi no new railway bond stands for extension. Chiefly owing to the exhaustion of profitable new railway territory we have, in the region named, passed from a period of branch line and extension bonding to one of general and "consolidated" bonding, based on betterment. Financially, as well as physically, the transition is a significant one.

The question of the future is one to which we have heretofore alluded in these columns. Another panic period has passed, and a new period of high railway credit, based on increased net earnings, opens ahead. During it, will railway development, whether it takes the form of internal betterment or external extension, be predominantly based on the bond or stock, on the secured fixed charge, on the contingent dividend, on the low interest rate of the bond or on the higher rate of the new stock with its presumptive "melon" annexed? To some extent the answer will come from the preconceived views or policy of railway presidents and directors. To a much larger degree it will depend on whether the vast digestive power of the railway bond market during the last year or more is to continue—vast, even with allowance for the fact that during the last few years the railway bond has entered overmuch the limbo of speculation.

COMPETITIVE RAILWAY BUILDING IN CENTRAL OREGON.

The most interesting competitive railway building taking place in the United States at present is that through the canyon of the Des Chutes river into central Oregon. The lines being built are the Des Chutes Railway, a Harriman project, and the Oregon Trunk Line, a Hill project. The Southern Pacific, running south from Portland to San Francisco, crosses western Oregon and throws out eastwardly branches to Idanha, Lebanon and Wendling; and its Pacific & Eastern line swings as far east in Oregon as the Cascade range. The Oregon Railroad & Navigation Company parallels the Columbia river from Portland to Umatilla, where it branches, one line following the river northeastwardly into Washington and the other going off in a southeasterly direction across Oregon to a connection with the Oregon Short Line at Huntington, Ore. On its way the Oregon Railroad & Navigation Company throws off branches southwardly and westwardly to Shaniko, Condon, Hepner and Pilot Rock, and the Sumpter Valley extends from a connection with the Oregon Railroad & Navigation Company at Baker City westward to Austin, in Grant county. The Oregon Short Line also has a branch from Ontario, Idaho, to Vale, Ore., and the Great Southern extends from a connection with the Oregon Railroad & Navigation Company at The Dalles southward 30 miles to Dufur. This leaves a large area in the central and southeastern part of the state without a mile of railway. It has been considered a hard territory to enter, the Cascade range running along its entire west side, the Blue mountains running along most of its east side, and the territory itself being a table land 3,500 to 4,500 ft. above sea level and containing numerous good sized mountains.

For some years E. H. Harriman received much criticism because he did not build a road to "open up" central Oregon. In 1908 when he was taking a vacation in that state he publicly promised the people that as soon as surveys could be completed he would build a road down the Des Chutes river. Other persons had taken steps to build a line along the Des Chutes some years before. They had filed incorporation papers under the laws of Nevada for the Oregon Trunk Line and had done some surveying. It is probable that the Harriman lines would have brought their rights and interests if it had been found that their incorporation was perfectly regular and had believed that they had anything tangible to sell. This not being the case, Mr. Harriman decided to begin construction independently of this project. The work was delegated to the Oregon Railroad & Navigation Company. Surveying was begun from a connection with the Oregon Railroad & Navigation Company at the mouth of the Des Chutes river. The line is to be in the canyon of the Des Chutes for about 80 miles and its immediate destination is Madras, Crook county, a distance of 130 miles. It is expected eventually to build to Bend, Crook county, on the upper Des Chutes.

While surveying was in progress in the Des Chutes canyon unexpected difficulties were met. The moribund Oregon Trunk Line project began to show signs of life. Evidences appeared that it had changed hands and that the new owners had ample means. It was rumored that these owners were the Hill interests, and that they were going to invade what had before been regarded as peculiarly Harriman line territory by building into central Oregon from a connection with the Spokane, Portland & Seattle at The Dalles on the Columbia river. The election of John F. Stevens, the eminent engineer, as president of the Oregon Trunk Line verified these rumors. By August parties of surveyors and workmen representing both interests were in the canyon. There is room enough for two lines there, but construction must be very heavy and expensive at the best and, of course, each desired to build on that particular side of the river at any given place which offered the most advantages. Their map covered 12 miles of the same land. A clash was inevitable. It oc-

curred, and on August 24 the United States district court at Portland, Ore., issued an injunction restraining representatives of the Des Chutes Railway from going on that part of the right-of-way which had been surveyed by the original promoters of the Oregon Trunk Line.

Work on both roads has continued despite the litigation. Probably it will merely define the course which the right-of-way of each must take. The Hill interests have reincorporated under the laws of Washington and are surveying for a bridge across the Columbia river at Pelilo, where connection will be made with the Spokane, Portland & Seattle and the Oregon Trunk Line, like the Des Chutes Railway, will be built to Madras and ultimately to Bend. Contracts have been let for the construction of 120 miles of the Oregon Trunk Line and for 130 miles of the Des Chutes road. Not only do both command ample resources, but they are in the hands of two of the most competent railway engineers in the country. Mr. Stevens is well known as former chief engineer of the Panama Canal and also chairman of the Panama Canal board, as well as for his railway work. It is not so generally known that G. W. Boschke, chief engineer of the Oregon Railroad & Navigation Company, who is in charge of construction of the Des Chutes line, besides having rendered important services to the Harriman lines, is the builder of the famous Galveston sea wall.

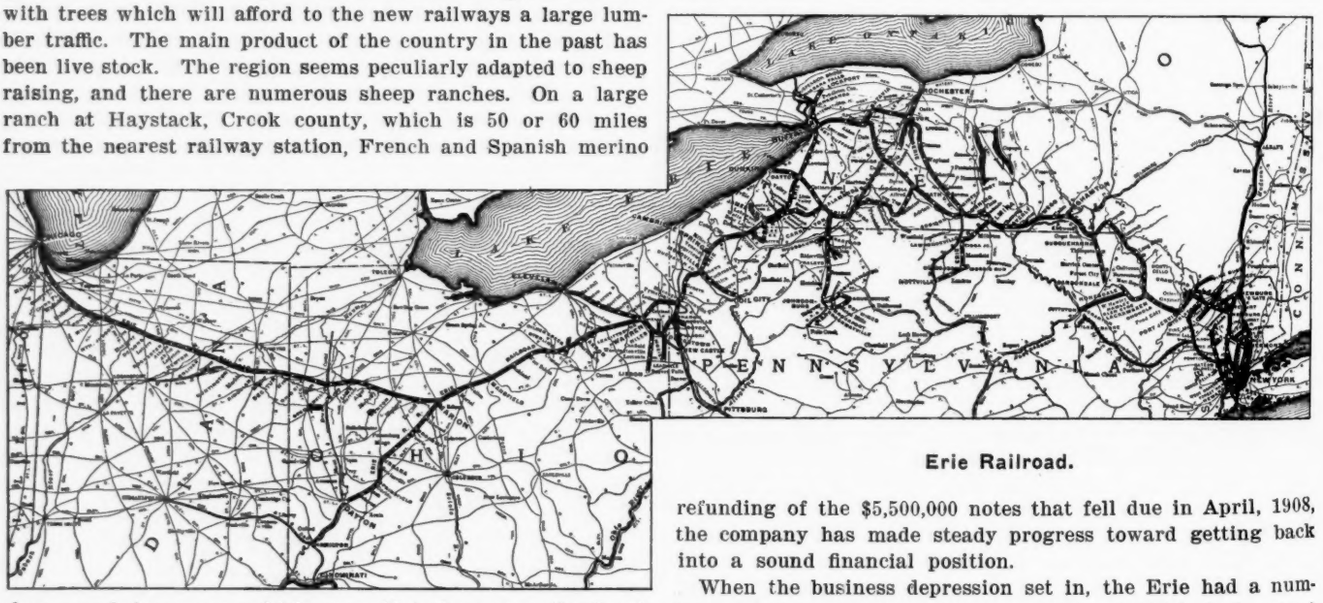
The territory for which the two largest railway systems in the West are engaged in competitive construction is, as already stated, a high tableland. The annual precipitation is small. Judging by what is being done now on a small scale, it should be possible to raise fair crops of wheat and oats in it by dry farming. There is now some irrigation from the Des Chutes river which enables quite large crops to be grown. The eastern slope of the Cascade range is covered with trees which will afford to the new railways a large lumber traffic. The main product of the country in the past has been live stock. The region seems peculiarly adapted to sheep raising, and there are numerous sheep ranches. On a large ranch at Haystack, Crook county, which is 50 or 60 miles from the nearest railway station, French and Spanish merino sheep are being grown which are said to be among the finest produced in the world. The French merinos are from the breed maintained by the French government, and it is stated that lambs of a given age produced there have exceeded in height and weight any lambs of the same age which have ever been produced from the same stock in France. It seems probable, therefore, that both roads will get a fairly good traffic from the start, and that the country may be expected to so develop as to give them a substantially larger traffic within a comparatively few years. Enough is not known of the quality of the soil in general to judge of its ultimate productivity.

Both roads will be better built than new railways into undeveloped territory usually are. The large financial resources of the Hill and the Harriman lines will make this both practicable and desirable. Seventy-five-lb. rails will be used on the Des Chutes lines. Its maximum grade in the first 83 miles will be .8 per cent.; for the next 17 miles, 1.3 per cent., and from Mile 100 to Redmond, .5 per cent. There will be 10 deg. of curvature in two or three instances and as many as 17 deg. to avoid tunneling. The canyon of the Des Chutes river contains cliffs which rise in many places 2,000 ft. high, and on the Des Chutes railway there will be six tunnels, varying in length from 500 to 1,000 ft., and three viaducts, one across Trout creek, which will be 100 ft. high and 510 ft. long; another across Willow creek, which will be 264 ft. high and 1,070 ft. long, and another over Crooked creek, which will be 302 ft. high and 360 ft. long.

There have been various rumors about the ultimate intentions of the Hill interests. One report is that the Oregon Trunk Line will be extended to San Francisco. The United Railways Company of Portland, Ore., which owns three miles of water front and 10 miles of standard gage railway track in Portland and a right-of-way from Portland to Tillamook, Ore., on the Pacific ocean, recently changed hands. It is said that the Hill interests are the backers of the purchasers and will use the property for terminals and to reach the ocean. What basis there is for these reports cannot be stated. They do not look as if they have any basis. But of the fact that the Hill lines are entering a territory where they will come into closer competition with the Harriman lines than heretofore there can be no question.

ERIE RAILROAD.

In 1908 the Erie escaped receivership only by a narrow margin. Default on payment of notes was prevented through the personal intervention of E. H. Harriman. But since the refunding of the $5,500,000 notes that fell due in April, 1908, the company has made steady progress toward getting back into a sound financial position.



Erie Railroad.

When the business depression set in, the Erie had a number of improvements under way, most of which had not at that time been financed. It was necessary for the economical operation of the road that these improvements should be completed as soon as possible. An attempt was made, however, to stop all improvement work where possible and thus keep what money there was in the treasury for the payment of maturing obligations. The attempt was unsuccessful, because there was not enough money available to refund the obligations without agreement by holders to take new securities in exchange. This they refused to do; moreover, the improvements that had been started were vitally necessary to the Erie, and contained possibilities of important economies as well. Probably no one recognized this as quickly or realized it more fully than did Mr. Harriman, who was a director and a member of the executive committee. He per-

sonally loaned the company money to meet the maturing $5,500,000 short term notes, and a plan was devised by which the Erie was to issue $15,000,000 three-year 6 per cent. notes, of which Mr. Harriman took $5,500,000, and the notes that he had paid off were deposited as collateral under the new notes. In addition, arrangements were made for the sale of $5,000,000 notes for cash, the cash being used to pay interest coupons falling due on various issues of bonds, these coupons being deposited as additional collateral under the notes. For a time it seemed as if it would be necessary to make some provision for funding the interest coupons over a period of years, and application was made to the New York Public Service Commission, Second District, for permission to issue bonds secured in part on matured interest coupons.

In the meantime the company had been going ahead on the improvements and additions, and as parts of this work were completed and the increase in facilities made possible a greater net income, the bond issue plan was abandoned, at least temporarily, and the company now hopes to sell securities that it has in its treasury in time to meet the $15,000,000 notes when they fall due in April, 1911.

The reorganization committee turned over to the Erie in 1895 securities for construction purposes having a book value of $2,750,000. All of these securities have now been sold by the company and the cash received from their sale amounted to $2,970,000. Since 1895 the trustees of the mortgages have turned over to the Erie $5,000,000 prior lien bonds, $9,000,000 general lien bonds and $22,000,000 convertible bonds. Of these the company has sold $29,015,000 bonds for which it received $26,240,000 cash. There are, therefore, in the treasury $6,000,000 general lien bonds and about $1,000,000 convertible bonds.

The company has spent in all since 1895 $10,000,000 for construction and equipment purposes in addition to expenditures for which bonds have been issued, so that it is or will be entitled to be reimbursed for this amount by the issue of general lien bonds or convertible bonds. There were on June 30 $10,462,000 of the collateral notes due in April, 1911, outstanding. The prospects of being able to refund these notes without the rather doubtful expedient of funding matured interest coupons will depend on the earnings of the company.

In the fiscal year ended June 30, 1909, gross revenue amounted to $50,400,000 as compared with $49,800,000 in 1908. Expenses in 1909 were $35,500,000 as against $39,900,000 in 1909. It will be seen that the company reduced its operating ratio from 80 per cent. in 1908 to 70 per cent. in 1909. This was effected through a reduction in maintenance charges and in cost of transportation.

Transportation cost $16,600,000 in 1909 and $17,800,000 in 1908. The decreases shown in the detailed accounts are general in character and are due to the greater efficiency of facilities and service. The reduction in cost of fuel for locomotives is an exception and is due to a reduced rate per ton paid for fuel during the year. Of the total operating expenses, $20,860,000, or 57 per cent., was paid to labor, being distributed among 36,324 employees. In 1908 the total amount paid labor was $22,339,000, distributed among 38,403 employees. It will be seen that, like other companies, the Erie found it possible to cut down its operating force, but not to materially reduce the rate of wages, the average wage being $574 in 1909 and $582 in 1908.

Maintenance of equipment as a whole cost $9,600,000 in 1909 and $10,700,000 in 1908. Maintenance of way cost $4,200,000 in 1909 and $5,900,000 in 1908.

This is a big reduction in the charges for maintenance, but the 1909 unit figures given in the accompanying table do not look too low, and President Underwood says that the decreased locomotive repairs is largely accounted for by the fact that during the fiscal year ended June 30, 1909, it was necessary to have an unusually large number of locomotives repaired at outside shops, while last year the greater proportion received general repairs at the company's shops. The charge for repairs of passenger-train cars is low when compared with such a road as the Baltimore & Ohio, but the reason for this is that the Erie has a very large suburban business while the Baltimore & Ohio has comparatively little of this short haul traffic. It is not necessary to spend as much on the up-keep of cars used in commuting service as on cars used for long haul traffic.

Unit Costs of Maintenance.	1909.	1908.
*Maintenance of way	$1,345	$1,953
†Repairs per locomotive	2,820	3,625
" " passenger car	469	504
" " freight car	58	54

*Per mile of first, second, etc., main track. The company does not show the number of miles of siding and switch tracks operated.
†Does not include renewals, depreciation or superintendence charges.

The increase in gross earnings mentioned above of $770,000 came from an increase in freight revenue. In 1909 merchandise freight revenue amounted to $20,800,000 and in 1908 to $20,000,000. Coal freight revenue amounted in the two years respectively to $14,400,000 and $13,900,000. There were 6,009,000,000 tons of all freight carried one mile in 1909 and 5,662,000,000 tons carried one mile in 1908. The average revenue per ton per mile of all freight was 0.586 cent in 1909 and 0.6 cent in 1908. The average haul was 183 miles in 1909 and 168 miles in 1908.

Passenger revenue amounted to $8,900,000 last year and to $9,500,000 the year before. The total number of passengers carried one mile was 597,000,000 in 1909 and 640,000,000 in 1908, the average revenue per passenger per mile being 1.487 cents in 1909 and 1.484 cents in 1908. The average length of journey was 25.2 miles last year and 27 miles the year before. This is a decrease of 6.6 per cent.

The Guymard cut-off, which has been under construction by the Erie & Jersey, a subsidiary of the Erie, was put in operation January 1, 1909. This cut-off is a low grade double track line running from Highland Mills, N. Y., to Guymard, and besides giving the Erie two additional tracks between those points, it avoids heavy grades that required helper engines for freight trains on the old tracks. The new tracks will be used for all the freight business and passenger trains will continue to use the old line. The volume of traffic over this portion of the line moves east, and since the cut-off has been in operation, the train load eastbound has been increased over 230 per cent.

Another piece of work at the New York end of the road that is designed to materially increase the facilities for handling freight and passengers is the Penhorn Creek Railroad. This is a four-track line through an open cut in Bergen hill, and connects the lines west of the present two-track tunnel with the existing tracks east of the tunnel at Jersey City. This improvement, which is expected to be in operation early in the calendar year 1910, will give the Erie six main tracks through Bergen hill into the Jersey City terminal.

The general traffic and car mileage statistics show increased operating efficiency. The train load was 469 tons in 1909 against 465 tons in 1908. While the total number of tons of all freight carried increased a little over 6 per cent. in 1909, the freight train mileage was 12,700,000, an increase over 1908 of a litle over 5 per cent. On the other hand, freight car mileage was 424,000,000 in 1909 and 394,000,000 in 1908. This is an increase of nearly 8 per cent. The empty mileage was 119,000,000 last year against 103,000,000 the year before, an increase of 15.68 per cent.

The tonnage of nearly all classes of commodities was greater last year than the year before. An important exception to this was a decrease of 308,000 tons in the tonnage of merchandise carried. In 1909 there were 1,960,000 tons carried. This is 6 per cent. of the total tonnage. The fol-

lowing table shows the more important increases in the tonnage of various commodities:

Commodity.	1909 Tons.	1909 Percentage, total tonnage.	1908 Tons.	1908 Percentage, total tonnage.	Per ct. inc.
Fruit and vegetables	371,000	1.13	301,000	0.9	23
Packing house products and dressed meats	246,273	0.75	161,563	0.48	52
Coke	1,556,382	4.75	1,234,600	3.67	26
Lumber	941,000	2.87	817,000	2.43	15
Bar and sheet metal	575,000	1.75	334,000	0.99	72

Although the Erie is not as dependent on the tonnage of bituminous coal as is the Baltimore & Ohio, still in a normal year from 20 to 21 per cent. of its tonnage is bituminous coal. Last year there were 5,960,000 tons of this product carried. This was 18.16 per cent. of the total tonnage and was 1,122,000 tons, or 16 per cent., less than was carried in 1908. The remarks that were made in regard to conditions in bituminous coal trade in the review of the Baltimore & Ohio report published last week apply equally to the soft coal traffic of the Erie. The depression in the soft coal trade lasted right up to June, 1909, but since that time the tonnage offered has greatly increased, and during the last three months the soft coal roads have been hard put to find cars and motive power to move all the coal offered for shipment.

With this certain increase in business in the present year, and with the prospects of better general business coming from better business conditions, the indications are that the Erie will earn considerably more gross in the fiscal year 1910 than in 1909. The revenues and expenses given for each month of the past year show that the reduction in operating expenses both for maintenance and for conducting transportation were made largely in the last three or four months. This suggests the probability that the saving in the current year over 1908 should be at least as great as it was last year. While, therefore, if Mr. Harriman had lived there probably would have been no question that the Erie would have found a way of refunding its notes due in 1911, it seems probable that the affairs of the company are in such shape and its earning capacity so much improved that the company itself will be able to take care of its notes before 1911.

The following table compares the results of operation in 1908 and 1909:

	1909.	1908.
Average mileage operated	2,231	2,171
Merchandise freight rev.	$20,777,945	$20,009,171
Coal freight revenue	14,411,844	13,837,170
Passenger revenue	8,880,634	9,489,449
Total operating revenue	50,441,162	49,784,236
Maintenance of way	4,232,407	5,911,414
Maint. of equipment	9,648,980	10,654,742
Traffic	1,124,621	1,068,846
Transportation	16,616,181	17,793,522
Total operating expenses	35,534,762	39,920,161
Taxes	1,369,523	1,111,535
Operating income	13,536,876	8,752,540
Gross corporate income	16,812,879	11,669,038
Net income	2,947,644	1,623,423*
Additions and betterments	381,927	575,804
Surplus	2,565,717	2,199,226*

*Deficit.

GREAT NORTHERN AND THE BURLINGTON.

The Chicago, Burlington & Quincy is controlled jointly by the Northern Pacific and the Great Northern through the deposit of $107,613,500 stock of the C., B. & Q. under $215,227,000 Northern Pacific-Great Northern joint C., B. & Q. collateral 4 per cent. bonds. The Burlington is complementary to both the Northern Pacific and the Great Northern, but in some of the physical characteristics of road it has more in common with the Great Northern than with the Northern Pacific. Before it was proposed to make a transcontinental line out of the Great Northern the company owned lines in Minnesota and North Dakota, with branches extending up into Canada that corresponded roughly to the mass of branch lines that the Burlington has in the territory west of Chicago. The Great Northern's line, however, running west from North Dakota to the Pacific coast, has comparatively few branches, and its traffic is largely furnished by transcontinental business.

Both roads are comparatively lightly capitalized per mile. The following table shows the capitalization and earnings of the two roads per mile of line operated in 1909:

	C., B. & Q.	Gt. Northern.
Stock outstanding	$11,939	$30,842
*Funded debt outstanding	19,932	14,691
Total bonds and stock	31,871	45,533
Interest charges	848	695
Gross earnings	8,556	7,886
Operating income	2,320	2,763
Dividend rate, per cent.	8	7
†Surplus after payment of dividends, per mile.	377	409
Approximate quotation for stock October 30, per $100 share	248	145

*The joint N. P. and G. N. collateral notes secured by C., B. & Q. stock are entirely eliminated from this comparison.

†This is before any charge for additions or betterments made from income.

The interest charges per mile on the Great Northern are noticeably low, and while its gross capitalization per mile is larger than the Burlington and its gross earnings smaller, nevertheless its operating income, which represents earnings after the payment of expenses and taxes and before the payment of fixed charges, is higher by $443 per mile than is the Burlington's.

During the past five years ended with June 30, 1909, the Burlington spent $17,527,963 for construction (additions and betterments) from capital account, and $5,423,496 from income. In the same five years the Great Northern spent $17,207,859 from capital and $15,656,776 from income. This is a total expenditure of $22,931,459, or $2,335 per mile of line operated in 1909 for the Burlington, and $32,864,635 total, or $4,828 per mile operated for the Great Northern. In arriving at these figures no account has been taken of the payments for the securities of controlled lines, nor in the case of the Great Northern has any account been taken of advances to lines other than proprietary lines for construction expenses.

The "extraordinary expenditures" charged prior to 1908 to maintenance of way and structures by the Great Northern have been included in the sums shown above as spent for additions and betterments. The much greater amount spent per mile for additions and betterments by the Great Northern probably does not indicate that its line is in any better shape than the Burlington, but indicates that the Great Northern needed to spend more money than the C., B. & Q. For maintenance charges pure and simple, the two roads are spending much the same sums. In 1909 the Burlington spent $1,345 per mile of first and second track, and $1,490 in 1908. The Great Northern spent $1,376 per mile of first, second, third, etc., track in 1909 and $1,382 in 1908. It will be noted that no account is taken of sidings and switch tracks. This is because the Burlington does not give in its report a list of its siding and switch track mileage, so that to make a fair comparison it is necessary to disregard this mileage on the Great Northern also.

Both roads are Hill roads, although they have only two directors in common, and the policy of both is the policy of James J. Hill.

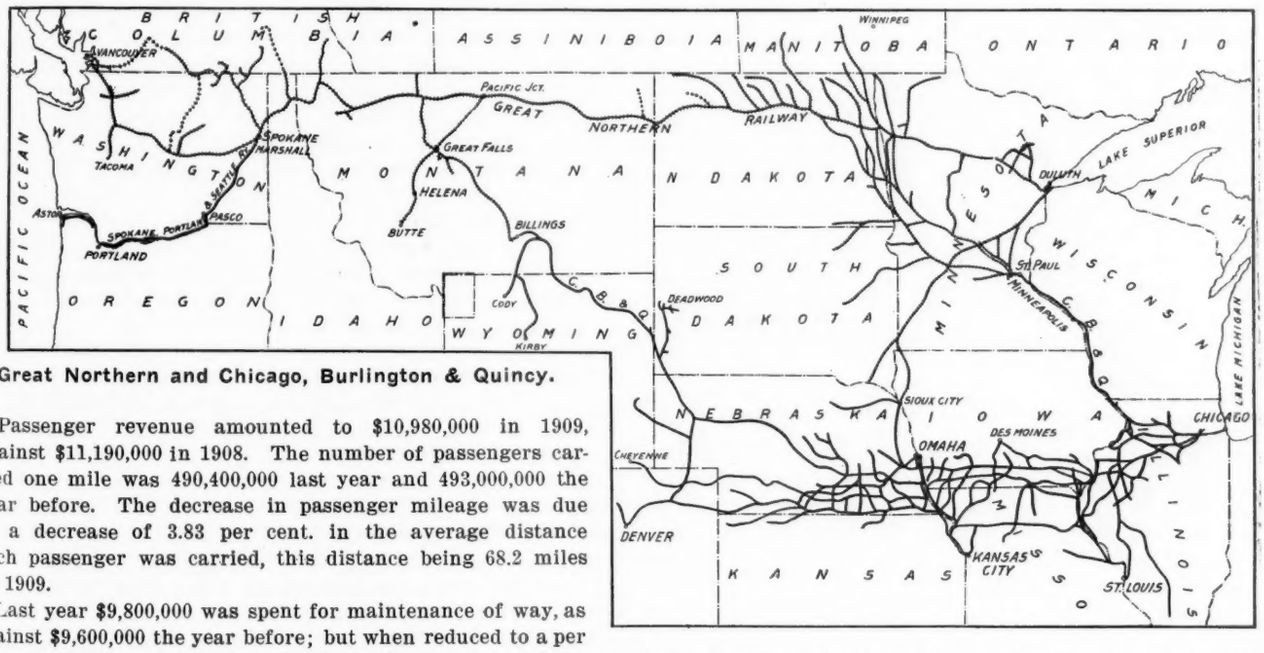
The character of operation in 1909 on the two roads is in part shown by the following table of averages:

	Burlington.	Gt. Northern.
Freight density	719,166	711,222
Cars per freight train-mile	32	35
Revenue train load, tons	382	502
Earnings per freight train-mile	$3.02	$4.09
Earnings per ton per mile, cts.	.079	.08151
Passenger density	114,892	72,032
Earnings per pass'gr train-mile	$1.56	$1.493
Earnings per passgr. per mile, cts.	1.86	2.239

The worst trouble with making any comparison between the Burlington and any other road is that the figures given in the annual report are so exceedingly meager that it is impossible to get enough data for a full comparison. Moreover, in neither the Great Northern nor the Burlington annual report are the detailed figures for expenses, as prescribed in the classification promulgated by the Interstate Commerce Commission, given. It is desirable that stockholders should have more information about the management of this property than this, and there are considerable differences of opinion among railway

men of the first class as to what it is proper to spend, for instance, for repairs of various classes of equipment. This more complete information should be placed at the disposal of the security holder.

In the fiscal year ended June 30, 1909, the Great Northern had gross operating revenue of $53,700,000, a decrease from the revenues in 1908 of $700,000, or a little over 1 per cent. Total operating expenses were $32,550,000 in 1909, or $3,600,000 less than in 1908. This decrease is equal to about 10 per cent. Revenue from freight was $39,500,000 in 1909, or 73.5 per cent. of total revenue, and $40,300,000 in 1908, or 74 per cent. of total revenue. The first half of the 1908 fiscal year was very prosperous for the Great Northern, while the first half of the 1909 fiscal year was below the normal; so that, comparing these two periods, there was a net decrease in freight revenue up to January 31, 1909, when compared with the same months of the previous year, of $3,600,000. Improvement began shortly before February 1, 1909, and the corresponding months in 1908, it will be recalled, were ones of great depression; so that the freight revenue between February 1 and June 30, 1909, showed an increase of $2,750,000 over the corresponding period of the previous year. The number of tons of revenue freight carried one mile amounted to 4,842,000,000 in 1909. This is a decrease of 6 per cent. from the 1908 ton mileage.



Great Northern and Chicago, Burlington & Quincy.

Passenger revenue amounted to $10,980,000 in 1909, against $11,190,000 in 1908. The number of passengers carried one mile was 490,400,000 last year and 493,000,000 the year before. The decrease in passenger mileage was due to a decrease of 3.83 per cent. in the average distance each passenger was carried, this distance being 68.2 miles in 1909.

Last year $9,800,000 was spent for maintenance of way, as against $9,600,000 the year before; but when reduced to a per mile basis we find that the Great Northern spent $1,376 per mile of first, second, etc., track, excluding switch tracks and sidings, in 1909, and 1,382 in 1908. Maintenance of equipment as a whole cost $6,200,000 in 1909 and $8,200,000 in 1908. President Louis W. Hill says that of the decrease of $1,996,000 in the amount charged to maintenance of equipment, $995,921 is on account of smaller charges for depreciation. During the year the original cost of all equipment was found, its salvage value estimated, and the amount of depreciation accrued to July 1, 1909, ascertained.

Transportation expenses totaled $14,800,000 last year as compared with $16,650,000 the year before. This is a decrease of 11 per cent. compared with a reduction of 2.26 per cent. in the total train mileage.

During the year there was a net increase of $2,000,000 in the amount of bonds outstanding in the hands of the public. The St. Paul, Minnesota & Manitoba second mortgage, under which there were outstanding $3,368,000 6 per cent. bonds, which matured October 1, 1909, were paid off. The Manitoba-Dakota extension mortgage, under which there were outstanding $3,035,000 6 per cent. bonds, matures November 1, 1910, and provision has been made for the retirement of the bonds. In 1909 current assets amounted to $16,050,000, of which $9,144,000 was cash. This compares with current assets of $19,900,000 in 1908, of which $11,700,000 was cash. Current liabilities amounted to $7,540,000 last year and to $7,042,000 the year before.

Through the purchase of the controlling interest in the Colorado & Southern the Burlington has gained an outlet to the Gulf. The control of the Colorado & Southern was held by Edwin Hawley and associates, and was sold during the past year to the Burlington for $16,416,337. The road, which is not shown on the accompanying map, runs from Denver south and southeast to Houston, Tex., and from there has a line under construction to Galveston. To raise the funds necessary for this purchase the Burlington sold last year $20,000,000 general mortgage 4 per cent. bonds of 1908-1958. In addition there were issued $4,522,000 general mortgage bonds in exchange for underlying bonds and for bonds canceled and retired through sinking fund operations. On June 30, 1909, the company had cash on hand of $15,100,000. This compares with $5,300,000 in 1908.

Total operating revenue last year amounted to $79,400,000 as against $78,500,000 the year before. Total operating expenses were $55,300,000 in 1909 and $55,990,000 in 1908. This left, after the deduction of taxes, operating income in 1909 of $21,400,000, and in 1908, $20,000,000. The revenue from freight, which amounted to $52,800,000 last year, was only slightly less than the year before, and the revenue from passengers was $19,800,000 last year as against $18,800,000 the year before.

Tons of revenue freight carried one mile totaled 6,682,000,000 in 1909 and 6,656,000,000 in 1908. The number of passengers carried one mile was 1,066,000,000 in 1909 and 1,016,000,000 in 1908.

The following table compares the results of operation of the Great Northern in 1908 and 1909:

	1909.	1908.
Average mileage operated	6,808	6,594
Freight revenue	$39,464,811	$40,311,420
Passenger revenue	10,977,948	11,189,553
Total operating revenue	53,587,444	54,429,633
Maintenance of way	9,797,370	9,588,747
Maintenance of equipment	6,173,847	8,170,109
Traffic	745,847	731,337
Transportation	14,822,546	16,652,135
Total operating expenses	32,553,487	36,146,236
Taxes	2,570,372	2,288,179
Operating income	18,812,783	16,317,142
Gross corporate income	22,566,583	20,164,477
Net corporate income	17,487,434	14,990,314
Dividends	14,697,473	12,521,482
Betterments	2,112,101	2,174,362
Surplus	677,861	294,470

The following table compares the results of operation of the Burlington in 1908 and 1909:

	1909.	1908.
*Average mileage operated ...	9,282	9,236
Freight revenue	$52,768,763	$53,036,306
Passenger revenue	19,797,152	18,819,239
Total operating revenue	79,414,357	78,459,064
Maintenance of way	13,203,214	14,603,477
Maintenance of equipment..	13,510,266	12,501,461
Traffic	1,594,996	1,555,180
Transportation	24,927,016	25,507,271
Total operating expenses.....	55,347,759	55,985,225
Taxes	2,546,928	2,484,031
Operating income	21,361,263	20,005,003
†Gross corporate income	20,889,471	19,758,390
Net corporate income	12,338,136	12,115,489
Betterments	2,268,816	3,225,994
Dividends	8,867,128	8,867,128
Surplus	1,202,192	22,367

*This is for all roads operated and controlled, and the figures for revenue and expenses are also for operated and controlled roads.

†It will be noted that in both 1908 and 1909 there was a debit balance for "rents balance, income from securities owned and other income and interest."

NEW BOOKS.

New York Tunnel Extension of the Pennsylvania Railroad. Introductory paper by Charles M. Raymond, and account of the East river division by Arthur Noble; reprinted from the Proceedings of the American Society of Civil Engineers.

We have already published an abstract of the first of these two important papers in the *Railroad Age Gazette.* The present pamphlet, of 44 pages, fully illustrated with plans and profiles, presents the material in handy form for filing. The price of the pamphlet is not stated.

Railway Freight Rates, the legal, economic and accounting principles involved in their fundamental determination. By Maurice H. Robinson, Professor of Economics at the University of Illinois. Pamphlet; paper covered; 32 pages. Reprinted from the *Yale Review,* New Haven, Conn. Price 10 cents.

Readers of the *Railroad Age Gazette* will recollect that Professor Robinson's admirable study of freight rates was published in these columns in serial form, by permission of the *Yale Review.* Professor Robinson has written a discussion of freight rates from a historic or philosophic point of view, which is easily the leading work on the subject in this country, and the low price at which the pamphlet is distributed ought to place a copy in the file of every student of transportation.

The Atchison Railroad; Its Progress from 1897 to 1909. By Chas. F. Speare. Republished from the *Evening Mail.* Pamphlet; 27 pp.; 6 in. by 9 in. Price, 25 cents.

Mr. Speare has brought out a new pamphlet in the *Evening Mail's* railway series, the former ones having dealt with the Gould lines (1908); the merged roads of Mexico (1909); the Seaboard Air Line (1909), and the Western Maryland (1909). Like the other pamphlets, the one at hand is a full and comprehensive description of the salient points of the property, which is described both from a physical and from a traffic point of view. Mr. Speare knows what the important things about a railway are, and describes properties with accuracy only slightly tempered by his unfailing optimism.

General Lectures on Electrical Engineering. By Charles Protens Steinmetz, A.M., Ph.G., edited by Joseph LeRoy Hayden, Schenectady, N. Y.: Robson & Adee. 284 pages; 6 in. x 9 in.; 46 illustrations; cloth. Price, $2.00.

While the scope and range of the lectures in this book are broad and general, the reader must be a pretty thoroughly trained electrical engineer in order to read them with complete understanding. As student lectures they must have been delivered to the advanced classes. With this preparation they will be found to be exceedingly interesting and possessed of all the clearness which characterizes Mr. Steinmetz's method of putting things. They deal with the problems of generation, control, transmission, distribution and utilization of electric energy; that is, with the operation of electric systems and apparatus under normal and abnormal conditions and with the design of such systems, but the design of the apparatus is discussed only so far as it is necessary to understand their operation and so judge of their proper field of application. There are 17 lectures in all and they treat of the higher problems, that do not fall to the lot of every engineer to meet, although every engineer should know how to solve them. These problems are stated, and there is a general discussion not only on the proposition itself but on the difficulties that will be encountered and the general principles involved in overcoming them.

The first lecture is a general review, in which the methods of transmission are touched upon, and this is followed by direct current distribution, the load factor and cost of power, long-distance transmission, higher harmonics of the generator wave, high frequency oscillations and surges, generation, hunting of synchronous machines, regulation and control, lightning protection, the electric railway and the characteristics of its motor, the alternating current railway motor, electrochemistry, the incandescent lamp, and arc lighting.

Quoting from the preface: "Because of the nature of the subject, the treatment is essentially descriptive and not mathematical; that is, it comprises a discussion of the different methods of application of electric energy, the means and apparatus available, the different methods of carrying out the purpose and the relative advantages and disadvantages of the different methods and apparatus which determine their choice." While the nature of the text is such that it does not lend itself readily to indexing, the book would be of more value for reference if an index had been provided, or at least a table of contents.

In addition to the 17 lectures that form the main portion of the book, there are two appendices, which are papers read by the author before the Society of Illuminating Engineers on Light and Illumination and before the National Electric Light Association on Lightning and Lightning Protection.

These are masterpieces of cleanness of elucidation and can be read with profit and intelligence by any educated man. In the first he lays down the principles of light energy and illumination and sets forth a theory of radiant energy that is of course scientific, and thereby reasonable, especially in that it tends to reduce the principles of radiant energy and increase the comprehensiveness while reducing the number of the laws. It is especially valuable in its suggestions as to the methods that should be pursued under different conditions and requirements of lighting, and shows the effect of color and why those effects are produced. There is one assertion, however, that must be questioned seriously. On page 238 the author says: "If you have a green light and a red light, which at a certain distance appear equally brilliant to the eye, * * * at greater distances you will see the green light fairly brightly, while the red is almost invisible." This is so diametrically opposed to practical experience with the side lights on vessels, and the signal lights on railways, where the red light can invariably be seen at a greater distance than the green, that it leads one to ask the character of the glass with which the other results were obtained or the peculiarity of the eyes that can see so differently from the majority of men. In the same way, in discussing the cause and effect of lightning discharges, the author puts the increase of potential which causes the discharge as the effect of the aggregation or uniting of a number of smaller particles into a larger one, and cites the fact that a heavy downpour of rain accompanies a flash of lightning as proof that the formation of the big drops was a contributing cause of the flash. It would have been a valuable addition to this paper if the author had cited in some detail the observational data and experiments upon which this assumption is based, for it, too, diametrically contradicts previous hypotheses on the subject. Similarly, the old cherished notion that heat lightning is merely a reflection or refraction of a storm so distant that we cannot hear the thunder is upset, and we are told that we must go back to the suppositions of the past, and regard heat lightning as an entity in itself. This is interesting, but the proof is lacking, nor is there any explanation of the fact that heat lightning invariably occurs when it is dark, and always on a far-distant horizon, and that thunderstorms, when reported, are found to have been raging in the quarter where the heat lightning was seen.

Letters to the Editor.

WHAT IS A REASONABLE RATE?

New York, Nov. 1, 1909.

TO THE EDITOR OF THE RAILROAD AGE GAZETTE:

I congratulate the *Railroad Age Gazette* on the editorial in the issue of Oct. 29 headed, "What is a Reasonable Rate?" It is really admirable. The statements and conclusions are perfectly true and well expressed. Nothing can be better than the concluding part.

"Numerous reductions in railway rates have been asked for by shippers and travelers, or actually required by legislatures and commissions, during the past two years, not on the ground that they were excessive for the services rendered, but on the ground that the roads were making too much money. The roads usually are trying to meet the issue by seeking to prove that they are not earning more than a 'fair return on the fair value of their property.' This seems to be a serious tactical mistake. It is a good way to win a battle and lose a campaign. It is a good way to win a few rate cases now and get the cost of service principle so firmly fixed in the law as to cause many cases to be lost in future and rates to be regulated permanently on principles that will be disastrous to railways and public. We believe we speak the words of truth and soberness when we say that the railway counsel who shall present the issue of rates based on value of the service versus rates based on the cost of the service to the Supreme Court of the United States so as to get an explicit decision in favor of the former will confer as great a benefit, not merely on the railways, but on the American people, as there is to-day opportunity for an American lawyer to confer."

I would like to see the above put in large type and posted in every railway attorney's and counsel's office. I fear that the cost of service principle is already fixed in the law and that it will be extremely difficult to establish a rational method of ascertaining the reasonableness of rates. It is certain that a vast amount of old rubbish, the accumulation of many years, will have to be removed before we can look for reform. Managers of railways have no one but themselves to blame for the disastrous effects of their short-sided policy, "the tactical mistake of endeavoring to win a battle and lose a campaign," as the writer of the editorial has so well expressed it. Many years ago I pointed out to my railway friends the danger of endeavoring to justify their rates on the ground of the cost of transportation and since then I have always deprecated these efforts as fallacious and impolitic. The cost of transportation theory naturally led to the equally fallacious doctrine of "fair return on the fair value of the property," and this in turn led to the theory of valuation of railway properties as a basis for rate-making, and finally to the practical application of that theory by the Interstate Commerce Commission in deciding the Spokane case.

HENRY FINK,
Chairman of the Board, Norfolk & Western.

Contributed Papers.

ERECTION OF THE BROAD RIVER VIADUCT; CAROLINA, CLINCHFIELD & OHIO.

The completion of the Broad river viaduct of the Carolina, Clinchfield & Ohio on October 31 marks the closing of the last gap in the construction of the line from the coal fields to the markets of the South. By the middle of this month trains will be running through from Dante to Spartanburg. The following memorandum shows the rate of progress of the erection of the viaduct. It was just sixty days from the date of the commencement of the unloading of the steel on the ground that the rails were connected. The total length is 1,360 ft.

Dimensions of the bridge are as follows:

Total weight of steelwork	1,882 tons
Total length of steelwork	1,360 feet
Height of rail above low water	160 "
Length, channel span	200 "
Depth, channel span	38 "
Weight, channel span	375 tons

Approach viaduct, 40-ft. towers, 70-ft. spans.
Masonry abutments and pedestals, 1,250 cu. yds.

All channel piers are founded on hard rock, which in many cases necessitated excavating to a depth of over 25 ft. below the bed of the river, to the mica schist, sandstone or quartz rock. The material thus removed was a disintegrated mica schist and clay, with some river mud and cobblestones or coarse gravel.

The contractor for substructure was J. C. Dunn, Cleveland, Ohio, as sub-contractor for MacArthur Brothers Company, New York. The contractor for steelwork and erection was the Pennsylvania Steel Company.

The progress of the work was as follows:

Pennsylvania Steel Co. began unloading Sept. 1, 1909.
" " " erected bent No. 1 Sept. 2.
" " " erected span No. 1 Sept. 3.
Lucius Company derrick car arrived Sept. 7.
" " " ready, began work Sept. 9.
Completed viaduct erection to bent No. 13 Sept. 27, a. m.
Began A tower, north side of channel, Sept. 27, p. m.
Completed A tower, north side of channel, Sept. 30.
Erected timber bent on A tower Oct. 1.
Had completed approach span to A tower, also end posts, batter posts and bottom chords of trusses, Oct. 4.
Completed erection of lower part of steel tower (bents 18 and 19) in temporary position in river, with temporary 70-ft. span as falsework, Oct. 8.
Completed six of ten 20-ft. panels of truss to end of 40-ft. tower, Oct. 16.
Completed erection south A tower, including timber bent on river side of it, Oct. 19.
70-ft. girders in temporary position to south A tower, thus completing falsework and blocking, Oct. 20.
Last pin driven and 200-ft. span completed Oct. 24.
Lucius Co. derrick car transferred to Spartanburg end of viaduct on Oct. 22.
Was set up ready for work morning of (Sunday) Oct. 24.
But as locomotive taken away by superintendent, began work Oct. 25.
Lucius car erected the two south 70-ft. spans, the spring bent, one 40-ft. tower and girders and assisted in completing tower adjacent to south A tower Oct. 30.
Both derrick cars completed 70-ft. span (19-20) Oct. 31, noon.
Track connected Oct. 31, 2:30 p. m.

In addition to supplying an extra derrick car for this work, the Meadows Company built a service track from the north end of the crossing, below viaduct and across the river to the south bank, to bent No. 20, for the delivery of steelwork, convenient to be handled by the Pennsylvania Steel Company working at level of the main track. The derrick car of the Lucius Company unloaded all material from cars and placed it on dolly cars running on the service track, down which it was lowered by hoisting engine, also furnished by the Meadows Company.

No work was done Labor Day, September 6, but work was prosecuted on all Sundays, save one, on which day local people ordered the sheriff to interfere. No casualties of any serious nature occurred, despite the dangerous character of the work, save the usual slight bruises incident to any work.

THE SUPERVISING STATION AGENT.

The following is from a report by C. A. Preston, superintendent of the Middle Division of the Pennsylvania. (There is an officer with similar duties on the Philadelphia division.)

A staff officer in charge of station agencies was employed on the Middle Division of the Pennsylvania December 1, 1905. This officer is the head of a separate and distinct department, and reports to and receives his instructions from the superintendent and is a regular member of the division staff. He has charge of all passenger and freight stations, sidings and other property in the jurisdiction of the station agent. He is responsible for the management of passenger, baggage, freight and scale agencies, and for the proper discharge of the duties by persons employed thereat. He must see that the station grounds are properly cared for and the force and facilities arranged to the best advantage to meet the requirements of

the business. He must know the general nature of the business at each agency and report upon the qualifications of the agents and their force. In the performance of these duties he is expected to visit each agency frequently and make regular inspections as to order, cleanliness, facilities and general conduct of the station; make recommendations as to changes, promotions, increase or decrease of force and the disciplining of men; make recommendations as to new sidings or increased siding or other facilities at stations; handle all station car reports and look after delayed cars; pass upon and approve requests for passes and requisitions for supplies; handle all instructions issued through the superintendent to agents; investigate all complaints against agents or their assistants, and handle all correspondence pertaining to agents and all claims for loss of damage.

In short, the supervising agent has charge of all business pertaining to agents and their force at all stations in the jurisdiction of the superintendent.

The incumbent is a man who had about 14 years' experience in agent's work, and about two years in the trainmaster's office, having thus had some experience in handling men, as well as thorough knowledge of the details of station work. The results obtained are very satisfactory, and the superintendent is enabled to put himself in much closer touch with the agents and their work than he could otherwise.

There is no doubt in my mind that such an officer is needed on all important divisions.

RAILWAY BUSINESS ASSOCIATION.

The first annual dinner of the Railway Business Association was held at the Waldorf-Astoria, New York, November 10. Covers were set for over 600 guests, and the list included representation from all parts of the country. The speakers included Hon. John C. Spooner, former United States Senator from Wisconsin; W. C. Brown, president of the New York Central; E. P. Ripley, president of the Atchison, Topeka & Santa Fe; W. H. Marshall, president of the American Locomotive Co.; and Hon. W. P. Hepburn, of Iowa. The toasts were: The Public and the Railways, Mr. Spooner; The Nation's Farms, Mr. Brown; The Railways and Public Approval, Mr. Ripley; The Equipment Industries and Railway Prosperity, Mr. Marshall; Popular Sentiment and Railway Legislation, Mr. Hepburn. The audience was most enthusiastic, and expressed vigorous appreciation of the important work which has been done by Mr. Post and his associates.

At the business session, held Wednesday morning, reports were received from the president, treasurer and executive committee, and new committees were chosen to serve for the ensuing year. The addresses of the president and of the executive committee are given, in substance, herewith. The treasurer's report and the lists of new committees are given in the General News Section.

All of the officers were re-elected for another term.

MR. POST'S ADDRESS.

George A. Post, toastmaster, spoke in part as follows:

Whence come we whose interests are represented in the Railway Business Association? From factories, furnaces, mines, lumber camps; from laboratories, chambers where inventive genius solves problems of mighty importance to the needs of civilization, and from offices where fecund minds plan enterprises requiring the employment of hundreds of thousands of American working men. Ours is an industry upon which not less than six million Americans depend for food, raiment and creature comforts.

In the carrying on of our activities, we give no offence to the public. We enhance their comfort physically and commercially. We study assiduously the means whereby transportation may be quickened, and markets reached for products which but for our fabrications would have no chance to find a customer. We are taxpayers of millions, and as shippers we pay freight tolls running into fabulous figures. In the communities where we are located we are respected, and are important factors in the stability of realty values and in the support of municipal government.

We have no enemies of our own, but the enemies of our only customer—the railways—cannot wreak their vengeance upon them without inflicting deep and dangerous wounds upon us. Every missile hurled at them hits us, too. Every dollar's diminution of their revenues taps our till and robs our employees of work. Is it any wonder that we have organized? The only wonder is that we did not organize long ago. Is it any wonder that we want public hostility toward railways to be abated? It is a matter of life and death to us.

Not as minions of the railways have we organized. Right here, in order that our position may be made clear, I desire to make a statement, which, it is hoped, will forever dissipate the suspicion, if there be such, that the Railway Business Association is but the lackey of the railways.

It is this: The manufacturers of railway equipment and materials, contractors in construction, and dealers in miscellaneous supplies, who constitute the membership of our association, are in nearly all cases deeply financially interested in the concerns with which we are connected, many of us having practically our earthly all invested therein. Upon the success or failure of our undertaking hangs our personal solvency, and the weal or woe of our dependents. On the other hand, it is seldom that those who are charged with the management of railways have any serious financial stake, beyond their official salaries, in the outcome of their operations. Bad years do not have for them the personal pinch that attaches to the manufacturer whose business is paralyzed. Anxiety of a kind, of course, possesses the railway manager confronted with corporate deficits, but it differs widely in poignancy from that which empties the pockets and bankrupts the individual.

From the foregoing comparison of the respective interests, it ought to be clear that public wrath toward railways has a terror of malign consequences for the railway supply man greater and graver than for the average railway manager. In whose interest then, think you, we are organized? Our own! We are actuated by an enlightened selfishness. We admit it. But by that admission we should stand acquit and free in the public mind of any possible charge of being dominated by the railways. We are dominated only by that most potent of all human desires—self-preservation.

For a year the Railway Business Association has been in existence. We have counseled together, we have studied with grave concern, and with a zeal born of our necessities, the situation which has in the recent past projected itself upon our every waking moment. We have conferred with many railway officials. Ours was a new and novel undertaking for them and for us. But when our objects were understood by them, they have given us their confidence. They have applauded our independence. They have respected our frankness.

We are not a "Faith Cure League," a "Sunshine Guild," nor purveyors of "Moonshine." We are business men who want business. We do not want political offices; we want orders. We cannot have orders unless our customers are prosperous, and they cannot prosper against a stiff current of public hostility. Our plea for the railways is not to "Let us alone," but the shibboleth of our campaign is an appeal to all concerned: "Let us behave!"

This appeal is made to railway folks from baggage handler to executive; to those who are patrons of the railway and to public officials clothed with authority in dealing with railway matters. It is the high hope of the Railway Business Association that the time may come when public wrath will be as quickly aroused against anyone who would seek to harm a properly conducted, square-dealing railway, as it would be aroused against an offending railway. The condition precedent to this state of the public mind is that unremitting atten-

tion be given to that branch of railway engineering having for its function the maintenance of public good will.

ANNUAL REPORT OF THE GENERAL EXECUTIVE COMMITTEE.

The Railway Business Association was organized one year ago with the view of ascertaining what the railway supply industries can do to create a public opinion more friendly to the railways. This, it was believed, could be done not only without detriment to the general and individual interests of the public, but to the advantage of everyone. After twelve months of conference and effort, we believe it has been demonstrated that such an organized endeavor can be developed into an agency which will substantially and permanently benefit the business interests of the country.

The members who founded this association entrusted to your committee the framing of a policy. This they did with one distinct understanding. Having on the roll members of various political parties, holding diverse views as to public questions, the founders of the organization drew the line clearly that no action should be taken in matters of public policy except such as would directly tend to promote wisdom in railway regulation. To that line we have hewn. We have taken no part in the affairs of any party or faction, or in the discussion of any question except railway regulation; and our experience with this method leads us to the conclusion that it should be uniformly adhered to in the future.

Concerning the relations of the association to the railways, the committee determined to maintain complete independence of the railway officers. There were obvious objects in this. First, it seemed desirable for an interest composed of successful managers of enterprises employing as many men as the railways themselves to consider the subject in their own atmosphere of competitive commerce rather than in the railway atmosphere, and to have their activities determined not only in appearance but in reality by the men who had accepted a responsible official relation to the organization. Second, it was hoped that any achievement which we might be so fortunate as to accomplish would give us more influence with the railways if what we did were done by us alone, and that such influence would materially assist on the railway side in bringing about conciliation. Again, it was hoped that when our independence of the railways came to be generally understood, we could command public attention and approval as we might not be able to do if we were believed merely to echo the voice of the railways.

Our relation with the railways we have further limited by not discussing any matters which might arise between them and their own employees, or any proposed matters primarily having railway employees as their beneficiaries.

Strict conformity to these limits has, in our judgment, contributed materially to the efficiency of the movement, and cemented the solidarity of the membership, while losing us no support in any quarter.

The work of this association is the first effort of its kind made by business men who, while dependent for their trade on railway prosperity and hence more keenly appreciative than other shippers of the damage done when railways are attacked, are yet themselves tonnage producers seeking good service and fair rates and in a position to sympathize more closely than railway officers with public sentiment.

Our hope was that through this peculiar relation we could place ourselves in the position of a conciliator between the public and the railways, securing concessions from both, and lifting the discussion of railway questions to the plane of commercial amity. It was, of course, necessary that we should win the confidence of both parties. We venture to think that this has been accomplished.

The public, speaking through boards of trade, through the press and through political representatives, has in striking ways shown that large employers, appearing in their own interest and asking only fair and moderate consideration of measures affecting them, are welcome. We do not cherish any illusions. We know that members of boards of trade and other commercial organizations which at our suggestion adopted resolutions urging conservatism in railway regulation will in the future as in the past criticize railway practices and advocate new measures of regulation. We remember that the press, in recognizing the need for legislative caution, has frankly reiterated its independence. We are well aware that those legislative bodies which on behalf of temporarily crippled industries postponed this year many pending bills affecting railways will continue to consider and to adopt railway legislation in the future. All these representatives of public opinion, however, have cordially acknowledged the worthiness of our motive, our right to be heard, and our frankness in conceding the need of regulation as well as of some voluntary changes in railway practice.

Conditions have been created for bringing about permanent and thorough-going results. The work must go on. We do not pretend that during the past year there has been any considerable constructive accomplishment. In the very nature of things what has been done was experimental and preliminary. It was necessary for us to demonstrate how large and potent an interest we represent. For this purpose we seized upon and emphasized the temporary unemployment due to the industrial depression now already passing into history. In asking on behalf of idle workmen that all new measures affecting railways should be postponed without debate as to their ultimate merits we did not enter upon any discussion of the principles embodied in the bills.

To the number of many thousands our members have circulated among their employees a pamphlet written by a member and addressed to his men, pointing out that to attack the railways which use the goods the workingman makes is to attack the workingman, and urging employees to "explain to the public with whom they come in contact the difficulties of the railway side of the question and with equal persistence explain to the railway men the public side of the situation." Many newspapers have recently emphasized the boomerang character of an attack upon the railways. In these and other ways a considerable number of persons have had this view of the case called to their attention.

But if substantial progress has been made—and there is no doubt about this—in convincing the public that unwise restriction of railways curtails industrial employment and thus hurts all business, yet even with respect to this fundamental proposition the numbers to whom it has been directly addressed are as yet comparatively few.

A public not continually reminded will soon forget the connection between railway baiting and unemployment. The reckless purveyor of misinformation has nothing to fear but the facts. When there is no organization alert to expose his misstatements he can say anything he pleases, and the victims, if they are silent, appear to give consent.

Even if anti-railway agitation, recently much diminished, should remain quiet for many years there would remain the necessity of laying true statements of fact and sound views before public officials whose intention may be good but whose knowledge and experience of transportation matters is limited.

The next few months will be very important in the field of federal legislation. Many states, too, will doubtless model their methods of regulation upon federal law, and indeed in many respects will be obliged to bring their statutes into conformity with them. Policies adopted by the Sixty-first Congress will have a widespread and possibly long-continued effect. Should this work at Washington be performed with incomplete consultation as to the fundamental business conditions and principles involved, who will venture to predict what legislative experiments may be undertaken, or what disturbance to industry and business they may precipitate? Should the new legislation (if any), however, be framed in the full light of knowledge and with an absence of retaliatory animus, a policy of regulation may be established acceptable

alike to the public and the railways, and reasonably certain to assure equitable treatment for all and adequate development of facilities.

The manufacturers of railway supplies have a right to be heard on these questions. More than that, they are peculiarly equipped to be of service to the country in helping to decide them.

It is our settled conviction that no real benefit can come from a general program of obstruction to regulation. Regulation has come to stay. There will be commissions whether railways like it or not. Much of their work is performed under difficulties, and it behooves those whose business interests are involved in the wisdom of the decrees to help rather than hinder the commissioners.

The railways now have a lively appreciation of the contribution which they must themselves make to any permanent solution. Through special magazines, bulletins and otherwise they are urging their men to meet the public desires. The mere concentration of so many minds upon this problem insures results. Nevertheless your committee believes that our association has an important function in making studies of public complaints and submitting recommendations with regard to them to the railways.

Portions of the public often ask for what they ought not to have and what it is not in the public interest for them to have. An appalling mass of bills confronts Congress and every state legislature at every session. Of bills including all subjects, Congress and the 39 state legislatures which were in session in 1909 were asked to consider 73,770. The wasted energy represented in getting rid of this burden of proposals measures the difficulty under which the law-makers labor in sorting out that which is necessary and wise from that which is a mixture of misinformation, prejudice and rash faith in legislative experiment. It is physically impossible for legislators to spread their attention over so many suggestions and still give adequate heed to the prevention of mistakes in the bills which become laws.

It is of the utmost importance to every interest in the country that the volume of legislation proposed or enacted should be radically reduced. The public must be kept continually reminded that hasty and ill-considered laws entail injury to business and curtail employment.

We find it to be the conviction of many business men and other members of the general public that a large part of the antagonism to railways has its origin in displeasure over what seems to them inconsiderate treatment given by the railways. Our representations might go far to solve the whole question if we could induce the railways to redouble their efforts in the direction of strengthening the personnel of those grades of their employees who come most in contact with the public and have most to do with forming public opinion. What has followed because of shortcomings in this direction in the past will follow again if the same conditions are present.

Many thoughtful observers look forward with grave apprehension to another reaction of public feeling against the railways. They fear that the least evil which could attend such a reaction would be renewed efforts to have the government more and more absorb purely managerial functions. The popular mind is confused as to what features of railway management should be the subject of regulation and what features left to the discretion of the railway officials. A broad understanding of this distinction by the public can alone assure a national policy of regulation permitting the railway managers reasonable discretion and making the business of railroading and the investment of capital therein safe and profitable.

Increased absorption by the government of managerial functions is a great evil to be feared from future reaction. Every step further toward governmental supervision of purely operating matters is a dangerous stride toward government ownership, which has not yet been advocated in the national platform of either of the great political parties, and if public sentiment is thoroughly educated will never be so advocated.

Anyone who is able to give a description of real abuses which his hearers recognize as having at least a basis of truth will always find a numerous following predisposed to believe the worst concerning those who have power or wealth. Arrogance and disregard of the reasonable desires of railway patrons inflame those who are immediately affected by them, and give opportunity for arousing widespread resentment among the masses of the people. If the return to prosperity and the present recession of hostility against the railways should foster heedlessness and result in a lapse into practices open to just criticism, this will furnish material for a new anti-railway campaign.

To avert this calamity, the best efforts of all concerned, and especially those closely concerned, should be freely given. Your committee believes that the Railway Business Association should be made a permanent organization. It should have for its purpose to assist the railways on the one hand in their problem of pleasing the public, and to exert on the other such an influence on the public and public officials as will tend to promote wise regulation fair alike to the public and the railways.

THE EQUIPMENT INDUSTRIES AND RAILWAY PROSPERITY.*

BY W. H. MARSHALL,
President, American Locomotive Co.

During our one year of existence as an association we have had ample opportunity to study the situation. Two facts stand out prominently; first, that we are suffering from an excess of legislation, and second, that for some reason the managements of railways, in too many cases, do not reach the heart and sympathy of the people.

Few are aware of the total volume of legislation placed annually upon our statute books. In the last regular session of Congress there were introduced 28,440 bills, and in the 1909 session of 39 state legislatures there were introduced 45,330 bills, or a total of 73,770. During that period Congress enacted 326 bills (exclusive of pension bills) and the 39 state legislatures 12,508, or a total of 12,834 bills that became laws. In the session of the British Parliament, completed in 1908, 547 bills were introduced and 239 became laws. In the United States there was one bill introduced for every 1,000 inhabitants and in Great Britain one for every 77,000. In the United States there was one bill enacted for every 6,000 inhabitants, while the British Parliament enacted one for every 175,000 inhabitants of the United Kingdom. Does not even a most charitable contemplation of this volume of legislation force the conclusion that it cannot all be deliberate or wise, or just or necessary? Is not the necessity of culling out over 60,000 proposals to legislate a most serious matter? And can anyone doubt that the weeding out process should have been more complete and that we all would have been better off with much less than 12,834 new laws?

The great volume of legislation leads to much that is inconsistent. State laws conflict with federal laws and are at variance with the laws of other states. A railway finds it is compelled to do in one state something it is prohibited from doing in an adjoining state and must at times go to the courts to determine which of the two laws it will obey, it being impossible to conform to both. This confusion will not disappear until the volume of new legislation is reduced to an amount that will permit of proper care in the preparation of each and every law. When this is accomplished we shall have fewer new laws and they will be the kind we need.

One great obstacle to the correct framing of proposed laws

*From an address at the annual dinner of the Railway Business Association, November 10.

is the suspicion with which most attempts to enlighten are received. Perhaps it is unfortunate that expert knowledge of the subject with which it is intended to deal is generally found chiefly among those to be affected by the legislation, for the reason that information from such sources is considered to be prejudiced. But legislation to be right must be based upon knowledge, and if that knowledge can be made complete only by contributions from interested parties, it is the duty of our legislators to throw aside suspicion and consult those who will be affected by the proposed legislation. To justify such a course their advances must be met by perfect frankness, and a cordial recognition of the rights of the public. Unreasoning opposition to legislation as such will not succeed. That which is unnecessarily restrictive or injurious in proposed legislation must be shown to be so with reasons that are true and convincing. Lack of frankness in the past and failure in too many cases to freely concede to others their rights undoubtedly accounts for much of the antagonism of recent years, and it would seem as if the rapidity with which it is to be eradicated will be measured by the completeness of the change in attitude on the part of the railways and other corporations.

It is also true that in the few instances in which railways have been consulted on proposed legislation, no unanimity of opinion was to be found among them. There is some excuse for this, for the railway managements represent interests located in various sections of the country, and what is best for one section may not fit any too well into the conditions found in another. The country has an example in the recent tariff law of the difficulties of reconciling interests in all parts of the country, and what applies to general business is true of railways. Nevertheless, railways cannot expect to be of any service whatever in clarifying the situation, until they can agree among themselves as to the form legislation should take. If the layman consults the experts and they hopelessly disagree, what is he to do? He will get along without the experts.

A railway management should not lose sight of the fact that in its task of conciliation special attention must be given to the small shipper, to the passenger who travels but a few miles on its trains and to local communities. The big shipper can take care of himself, or can at least make a demonstration that will result in his grievances being duly considered. Not only is it difficult to do justice to the smaller interests through the instrumentality of minor employees in an organization as complex and extensive as that of a railway, but the railway is at a further disadvantage as compared with a commercial or manufacturing business. In a commercial house improper treatment of customers is soon noticed as it leads to loss of business, for the patron can go elsewhere, but if the local patron of a railway is not treated right, revenues are not reduced. He must use the railway company anyway, but this exasperation is all the greater because he is helpless. It is not sufficient that those at or near the top of an organization should have the right spirit; that spirit must permeate the entire organization. It always does as a matter of fact, but unless determined effort is made it permeates too slowly. Whatever of effort is made in this direction has a twofold reward; it brings appreciation from the public and it improves the relations between employer and employee. Nothing adds more to the faith and loyalty of the kind of men railways wish to retain in their employ than daily evidences of justice to others. A full realization of all these conditions should lead to greater vigilance in the maintenance of correct relations with the public.

The Austrian State Railway Company still exists, but without any railway. More than 50 years ago, Austria, in dire financial distress, sold its state railways to this corporation, chiefly of French capitalists, which also acquired considerable land and manufacturing works. In taking back the railways, the state leaves land and factories in the possession of the company.

THE NATION'S FARMS AND NATIONAL PROSPERITY.*

BY W. C. BROWN,
President, New York Central Lines.

If the converging lines of production and consumption in the United States continue to approach each other as they have during the past ten years, long before the end of the present decade, the last vessel loaded with the agricultural product of this country will have left our shores, the great exporting grain elevators in our seaboard cities will stand empty, and this great nation, like those of the old world, will be looking for a place to buy the necessaries of life.

Our average annual yield of wheat for ten years was less than 14 bushels per acre. This is less than it was thirty years ago. Instead of improving we are going backward. I do not say this in a spirit of criticism or censure of the farmers of the nation. A large majority of them started with nothing but a quarter section of unbroken prairie, a team of horses or yoke of cattle, a plow and harrow, and a humble cabin as shelter from the heat of summer and storms of winter. The success achieved has been the result of years of arduous toil; the knowledge gained has been in the hard school of experience.

The increased value of corn, wheat, oats and barley in the United States, provided the average yield per acre of the same crops in Germany had been raised, and assuming a production of fifty bushels of corn to the acre, would have amounted to the stupendous total during the year 1907 of $2,280,000,000, while the increased value of the same cereals of the crop of 1909, computed on the same basis, would have been three and one-quarter billion dollars.

In April of this year, the New York Central tendered to the New York State College of Agriculture the use of a special train consisting of a combination car, four coaches and a dining car, for a trip through that portion of the state traversed by our lines. Twenty-one professors and advanced students of the New York State College of Agriculture, at Cornell University, and the School of Agriculture at St. Lawrence University made up the party. Thirty-one towns were visited and lectures were given to audiences ranging from two to six hundred earnest, interested farmers. These trips will be repeated and extended.

Every scheme for the reclamation of arid land by the government should be pushed to completion and the land opened to settlement at the earliest possible moment.

Land susceptible of cultivation, either by irrigation or without it, that is included in forest reserves should be excluded from such reserves and made available for settlement under such conditions as will insure prompt, intelligent and continuous cultivation. The railways should co-operate with the state agricultural colleges. I am going to recommend to the owners of the roads with which I am connected, the purchase of farms, to be operated as experimental farms, according to the most advanced methods of seed selection, fertilization and cultivation, at the expense of the road, but under the auspices of the agricultural college of the State in which the farm is located. If this recommendation is adopted, I shall hope to see it followed by a majority of the roads of the country.

Every thriftless and uninformed farmer would quickly note the difference between the result of his loose methods and those of the experimental farm, and benefit by the comparison. This system would multiply farms and multiply prosperous farmers, because 80 acres intelligently tilled will produce as much as 160 acres produce under our present slack and ignorant methods. It would return to the rural districts the preponderance of political power, where it can be more safely lodged than in the congested centers of population, already ominously powerful in many of our states.

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*From an address at the annual dinner of the Railway Business Association, Nov. 10.

THE RAILWAYS AND PUBLIC APPROVAL.*

BY EDWARD P. RIPLEY,
President of the Atchison, Topeka & Santa Fe.

The Interstate Commerce Law was passed in 1887. It was crude in its provisions and was the result of compromises between radicals and conservatives; it sought both to foster competition and to abolish it, and in that respect remains still contradictory and impossible.

Upon the passage of the law that which had been looked upon as perfectly proper and as the working of natural competitive forces became illegal and criminal. The railways generally accepted the law and made an honest effort to observe it—the mercantile community did not—indeed, they openly defied it, soliciting rebates unblushingly and threatening with the loss of their tonnage those roads who would not succumb. The interstate commission, new to its duties, contented itself with comparatively unimportant decisions and practically did nothing to help those railways who desired honestly to carry out the provisions of the law; and as a result, within a year of the passage of the law, it was quite generally disregarded. A few railway men were fined, a few shippers convicted—and almost immediately pardoned—and the law fell into disrepute, a condition disgraceful alike to the government, the shippers and the railways, and especially distasteful to the latter, but exactly what was to be expected.

The result was the passage of the so-called Elkins Bill and later of the Hepburn Bill, which while amateurish and in many ways vicious, have effectually stopped the rebate system—a result for which we may all be thankful.

In all the controversies that have led up to this almost complete control of railway earnings and railway policies by governmental agencies, the railways have as a rule acted in active opposition. They have not been unanimous—some of us were willing to accept it long before it became a fact, but the majority could see nothing in it but disaster—it is too early to say which was right; perhaps an earlier acceptance of control would have made the control more lenient; perhaps its earlier acceptance would, on the other hand, have bound the chains more tightly. But the fact remains that while the basic principle of absolute equality as to rates has been accepted by the railways gladly and in all good faith, and they have also accepted the principle of government regulation, the scars of the conflict remain and a large section of the public still suspects and misjudges us. It is true, of course, that in the rapid development of our business and in the exigencies of a most exacting profession there have been abuses and lapses, but I am here to maintain that the standards of fair dealing and commercial honesty in our business have been as high as in any other, and I appeal to you who sit around this table to say if it be not so.

Acknowledging, as we must, that the public is all-powerful, the question is how may we satisfy our masters and thus mitigate our woes and preserve our properties.

First—We must realize, as I think we all do (after a series of very hard knocks), that the railways are not strictly private property, but subject to regulation by the public through its regularly constituted authorities—that the government may reduce our earnings and increase our expenses has been sufficiently proved.

Second—To meet this situation we must endeavor to get in touch with public opinion. Perhaps you will smile when I say that for years I have read every article on railway matters in each of the papers published along our ten thousand miles of road—not an easy task for a busy man—but while I have waded through much chaff, I am sure it has resulted in some reforms.

Third—The avoidance of action seriously counter to public opinion except for compelling reasons.

Fourth—The disposition to explain these reasons through officers and employees of all grades. Generally the loudest criticisms come from those who are not anxious to know the truth.

Fifth—Efforts to improve service in many cases without hope of reward and for the deliberate purpose of winning public approval, such as better stations, improved heating and lighting devices, better equipment, better terminal facilities, separation of grades, etc., all with due regard to the rights of those whose money we are spending.

As we do all these things, meet us half way. Encourage the habit of not rushing into abuse. Try to consider the facts and the difficulties—this is for the public interest as well as ours. Oppose unnecessary and restrictive legislation and give us a chance.

Elbert Hubbard, of East Aurora, New York, recently remarked that "when God sent a current of common sense through the universe most of the reformers wore rubber boots and stood on glass." Our troubles are with this class—well-meaning men who have zeal without knowledge and enthusiasm without sanity; these we may not reach, but the great mass of the solid and substantial citizenship may perhaps be induced to stop and consider whither we are drifting and whether this greatest of all the country's industries is being fairly treated.

*From an address delivered at the Railway Business Association dinner, Nov. 10.

POPULAR SENTIMENT AND RAILWAY LEGISLATION.*

BY HON. W. P. HEPBURN.

The question of giving to the Interstate Commerce Commission the power to initiate the proceedings upon which the rate published by the railway may be changed is one that has received much attention at the hands of Congress and its committees, and has not yet met with favor. It has also been suggested that a change in the law should be made so as to enable the commission to postpone at its discretion any protested rate increase until a final hearing and determination by the commission; also such further change as will prevent any carrier from owning stock in another road that might be parallel to, or that might under other statutory provisions than those we have be a competing road.

The Congress hesitated for a long time to give the rate-making power under any circumstances or conditions to the Interstate Commerce Commission. It is contended by some persons that the act of 1887 conferred this power, or at least it was the intention of Congress in that act to confer this power. I was a member of the Committee on Interstate and Foreign Commerce of the 49th Congress that enacted the statute to regulate commerce. During the debates that contention was not made. Early in the deliberations of the commission they declared, through the voice of their chairman, that the law conferred no such power. It is difficult to see why that power should be given—why the commission should have the power, upon their own motion, to disturb a rate that none of the vast army of shippers complained of. Shippers are not apt to remain silent when they are aggrieved, and when they know that the government stands ready to give them relief at the expense on their part of the postage that will transmit their letter of complaint to the commission.

It has been the policy of the law heretofore to allow the railway companies to establish their schedule of rates unhindered until the rate was excessive. It is only excessive rates, unfair rates, that the shipper has the right to complain of, and until that standard has been reached in the belief of the shipper no one has the right to complain. A fair rate is not the subject of complaint, and simple justice requires that the right of the carrier to establish its rate should not be disturbed until injustice has been done. Suppose that the establishment of a new rate can be suspended upon the mere filing of a protest. Evil-disposed persons could in that way sus-

*From an address at the annual dinner of the Railway Business Association, Nov. 10.

pend every rate, and prevent a just and needed advance until the delay and burden and expense of investigation had been met. If at the end of this investigation it should be found that the protest was without basis, there is no remedy, and in the nature of things no practical remedy could be afforded.

If this rule of action should be adopted it would serve as a deterrent to prevent roads from voluntarily lowering rates, because of the fear that they could not be advanced without protest.

In an entirely lawful manner, and under authority granted by the various states that have created railway corporations, many companies have acquired interests in other roads; some of them being extensions; some of them being feeders; others being parallel and serving the same territory. This is objected to because it is said that it stifles competition; that two roads having the same common terminal points that are controlled by the same corporation through the ownership of stock will not be competitors in business. These gentlemen forget that it is the policy of the legislation that we have to destroy competition and not to foster it. The charges made against railway companies of their practices in their treatment of their patrons are revised and finally established by authority or law. Publicity is given to them in such a way that they cannot be changed without the knowledge of all competitors. These rates and practices cannot be deviated from without notice and without authority. Any attempt to secure business through the competitive methods of giving better rates or preferable service, being known, would at once be met by the rival road. If a company under such circumstances files a new schedule of rates, or of more favorable usages, instantly the rival does the same thing, putting itself upon precisely the same basis, and thus destroying all competitive effort. The law has brought about this condition, and therefore it is a misstatement to talk about competition in our great system of transportation. We have destroyed it. We have done so purposely, substituting government regulation, and government control, as a better and more stable method of securing those advantages to the shippers that in the old time the people sought to secure by encouraging the building of competitive lines. If this is true, where is the public harm to be found in a corporation owning two or more roads that have common termini?

There are some men prominent in railway councils who seem to regard the people and the law-making power as enemies—enemies who are willing to destroy or greatly injure them. These men are wofully mistaken. There are no people of this class who have the power to harm. If the law is obeyed, if equality of rights is given to all the people, if frenzied finance is avoided, if men will be content with moderate gains, confidence in the spirit of justice that animates railway management will be restored, destructive legislation will cease, and amity and accord will take the place of hostile contention.

The mass of the people are directly interested in the well-being of the roads. It would be well nigh suicidal for the law-making power to indulge in enactments that were unnecessary simply for oppression's sake, and that would cripple the roads in their efforts to produce these conditions of prosperity. Yet law-makers are like other men. They do not look with favor upon those who deride their authority, and contemptuously refuse obedience to the law they have enacted in efforts to secure the welfare of those whom they must protect. They will demand that the full measure of obedience be rendered to the law we now have.

If this obedience can be had; if the provisions of the statutes as they now exist are in good faith accepted by the carriers; if the interests of the shippers are looked to, as well as the interests of the carriers, there will be no legislation that can be called hostile; there will be no efforts to limit the greatest possible efficiency of the railway corporations of the United States.

A GERMAN REFRIGERATOR CAR.

According to a report of Consul-General Guenther, of Frankfort, a new refrigerator car has been brought out in Germany. It contains an individual refrigerating plant using methylchloride as an agent. The report states that the car is covered with a non-conducting material, and that, at one end, a small compartment is partitioned off in which a compressor is placed. This is driven by belts from the axle.

The reason for using methylchloride is that it can be volatilized at a low pressure, does not affect the copper pipes, and does not have as disagreeable an odor as ammonia or sulphuric acid. While the car is in motion the compressor sucks the gas from the condensing coil, which is attached to the roof of the car and presses it through a water tank into the condenser below the car, which is supplied with a collector for the liquid methylchloride. From there it is admitted into the cooling coils. Valves regulate the temperature of the gas in entering and leaving the cooling coil and also make it possible that only dry saturated gas is provided for the compressors. The arrangement of the collectors for the liquid methylchloride between condenser and cooling coils renders the cooling of the car independent of the motion of the compressor, especially when the car is not in motion.

At a speed of 25 miles an hour and an external temperature of 68 deg. Fahr. it is claimed that the interior of the car can be brought down to 32 deg., or freezing, in from 40 to 45 minutes.

ARTICULATED LOCOMOTIVE FOR THE TASMANIAN RAILWAYS.

In the Garratt locomotive, built for the Tasmanian Railways by Beyer, Peacock & Co., boiler location plays an important part, and an opportunity is afforded, even with the narrowest gage, to mount a larger boiler than is perhaps possible in the case of any other type of engine.

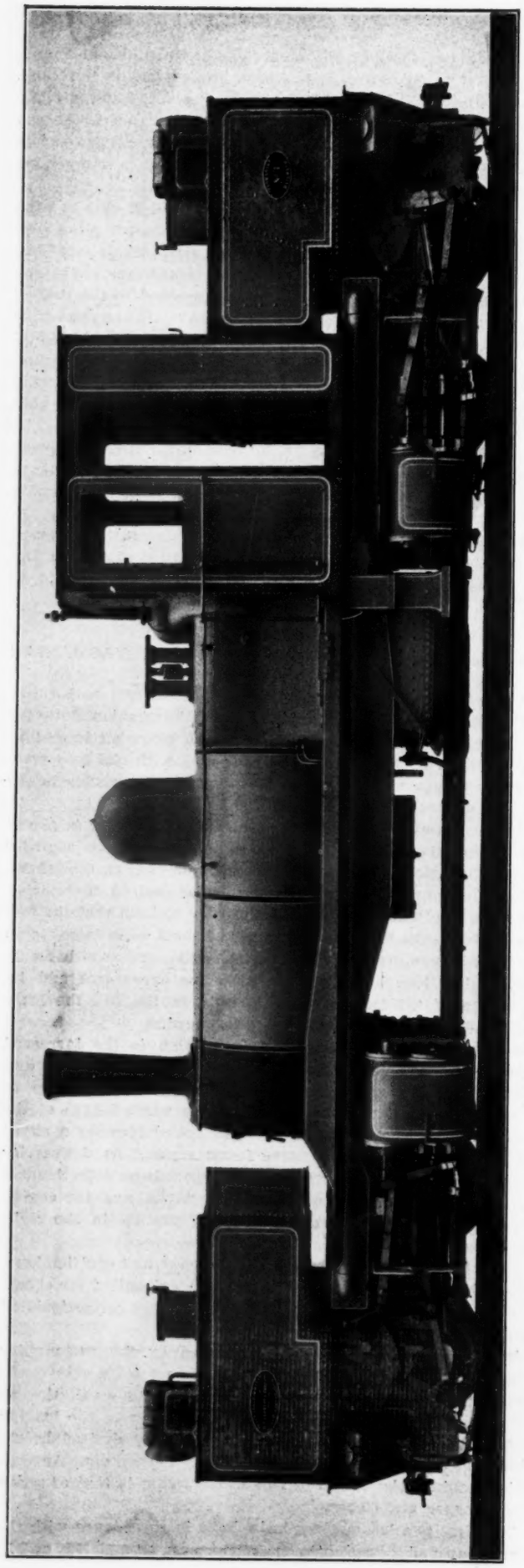
As the accompanying illustration shows, the boiler is placed wholly in between the steam trucks, being carried on a girder frame supported and pivoted at its extreme ends on the trucks. The boiler may lie as low in the frames as desired, there being no axles to consider, while the trucks are so built that the fuel and water tanks form integral parts of them, thus introducing an entirely new feature. The flexible units, one at either end, lead and follow, being free to take the curvatures and inequalities of the track and to exercise to the full the beneficial influence for which they are intended.

A prominent feature of the construction is the increased stability of the engine when traversing curves. Unlike any other type, the sharper the curves the further the center of gravity is brought inwards, owing to the whole length of the center line of the carrier frame and boiler forming a chord of the circle of which the curve forms a part. As the carrier frame terminates at the truck centers there is no objectionable overhang either of the boiler frame or tanks, and the engine thus automatically moves its center of gravity in the right direction.

The steam trucks, with their water tanks and coal bunkers, being the heaviest part of the engine are well suited for checking the nosing action which sometimes occurs on articulated locomotives.

The tank motor trucks are connected by the rectangular frame which carries the boiler, and there are no side tanks on this frame for the water therein to set up oscillation as the speed increases. The boiler can be as large as the loading gage will permit and can be located at any desired height above the rails irrespective of the size of the wheels. Another object achieved by means of this construction is that of securing a larger grate area.

The first two locomotives to be built in accordance with the ideas outlined above have recently been completed at the



Articulated Compound Locomotive; Tasmanian Government Railways.

workshops of Messrs, Beyer, Peacock & Co., Ltd., Gorton, near Manchester, Eng., and so far as is possible within the confines of the yards at these works they have been tested for flexibility and other qualifications. The track used was of quite a temporary character and comprised a reverse curve with a straight length of 27 ft. between two curves of 99 ft. radius. The superelevation on the curves was 2⅜ in. only. The engines have been built for the 2-ft. gage lines of the Tasmanian Railways and are four-cylinder compounds with a high-pressure truck at the smokebox end of the boiler and a low-pressure truck at the opposite end. The two engines are connected by a large pipe forming a passage for the exhaust steam from high to low-pressure cylinders, and thus acting as the intermediate receiver while working compound, and when, by virtue of the simple change valve provided, the engine is running single expansion then the pipe acts as an exhaust pipe pure and simple. The engines were each run from end to end of the temporary track above referred to several times and at speeds varying from 5 to 15 miles per hour and beyond a slight deflection at the entrance to one of the curves there was no disturbance of the track anywhere.

In these particular engines the forward, low-pressure steam truck carries a water tank and the rearward high-pressure truck a combined water tank and coal bunker. The distribution of weight has been determined with accuracy and it is believed that in actual service on the hilly and tortuous road in Tasmania the engines will prove to be easy riders and sparing of the track. For such a narrow gage as 2 ft. the boiler is of large proportions. It has a Belpaire firebox with widened grate and carries a high working pressure.

Leading particulars are as follows:

Cylinders, high-pressure, diameter	11 in.
Cylinders, low pressure, diameter	17 "
Piston stroke	16 "
Wheels, diameter	2 ft. 7½ "
Wheelbase of each truck	4 ft.
Total wheel base	26 ft. 9 in.
Total heating surface	628 sq. ft.
Boiler pressure	195 lbs.
Grate area	14.8 sq. ft.
Weight in working order	76,160 lbs.

The engines are fitted with automatic vacuum, steam and hand brakes, steam sanding gear and other modern equipments. The frames of the four-wheel trucks are placed outside and fly cranks thus become necessary. The valve gears are Walschaerts type actuating piston valves working above the cylinder.

The valves of the high-pressure cylinders are for inside admission and those of the low-pressure for outside admission. The steam pipe from high to low-pressure cylinders has a ball joint at each end to allow for the movements of the trucks on curves. These two ball joints and that for the connection to the high-pressure bogie are the only joints of that description used in the construction.

The Garratt principle is, of course, capable of much wider interpretation than that allowed by the 2-ft. gage to which it is now being applied. The following are some of the principal proportions of these locomotives:

Tractive effort ..... 15,209 lbs.

$$\frac{\text{Weight on drivers}}{\text{Tractive effort}} = 5.0$$

$$\frac{\text{Tractive effort x diameter drivers}}{\text{Heating surface}} = 658.1$$

$$\frac{\text{Heating surface}}{\text{Grate area}} = 42.43$$

$$\frac{\text{Weight on drivers}}{\text{Heating surface}} = 121.27$$

$$\text{Displacement, 2 h.-p. cylinders, cu. ft.} = 0.88$$

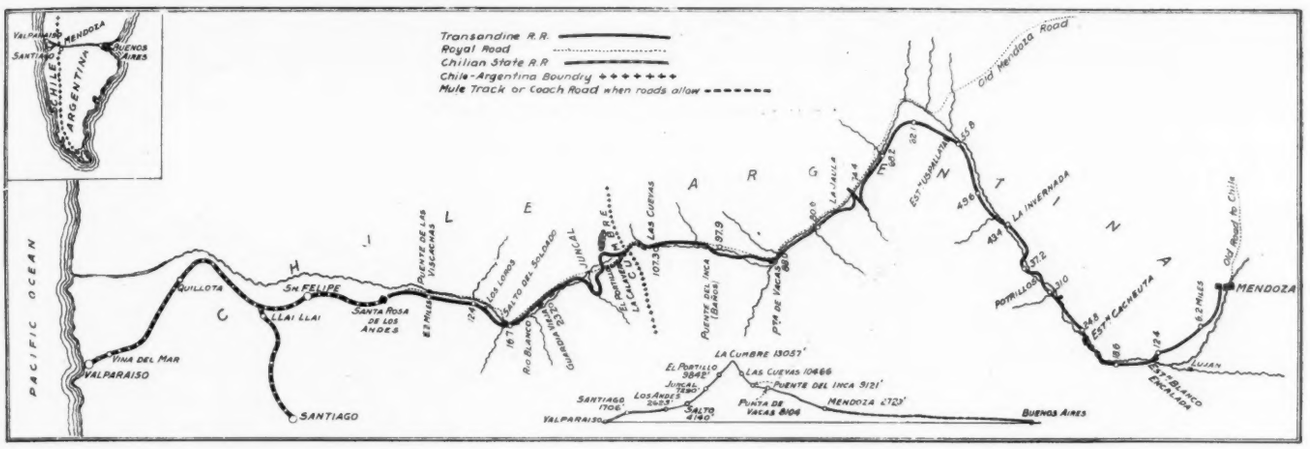
$$\frac{\text{Heating surface}}{\text{Displacement 2 h.p. cylinders}} = 713.63$$

$$\frac{\text{Grate area}}{\text{Displacement 2 h.p. cylinders}} = 16.81$$

THE TRANSANDINE RAILWAY.

BY T. H. MINSHALL,
Consulting Editor of the *Railway Gazette*, London.

When the Buenos Aires & Pacific Railway Company was formed its promoters must have been blessed with special foresight in choosing their name. For a long time, however, they themselves got no further westward than Villa Mercedes. The government had built a further line, the Argentine Great Western, which had passed into private hands. These were not, however, strong hands. The operation of the line was not considered satisfactory by the government, and had something not been done, either the government might have rebought it or extended its own Andino line westward. So the Pacific made its well-known arrangement to work the Argentine Great Western and give the shareholders what is practically Pacific preference stock. This got them as far as Mendoza. To go further was too tempting; the Transandine was in difficulties; work had more than once been stopped. So the Pacific also got that into its hands. Work is now proceeding. Last week only about 500 meters of tunnel remained to be made. The Chilean Transandine Company's tunnel is also moving quickly. The tunnels are meant to meet at the frontier, as a matter of fact the frontier has already been crossed; but it does not seem to matter. When this is complete, say this time next year, the Pacific will run through connecting trains from Buenos Aires to Valparaiso with only one night on the route, or if people prefer to stop at Mendoza, where there will then be a good railway hotel, two nights.



Map of the Transandine Railway.

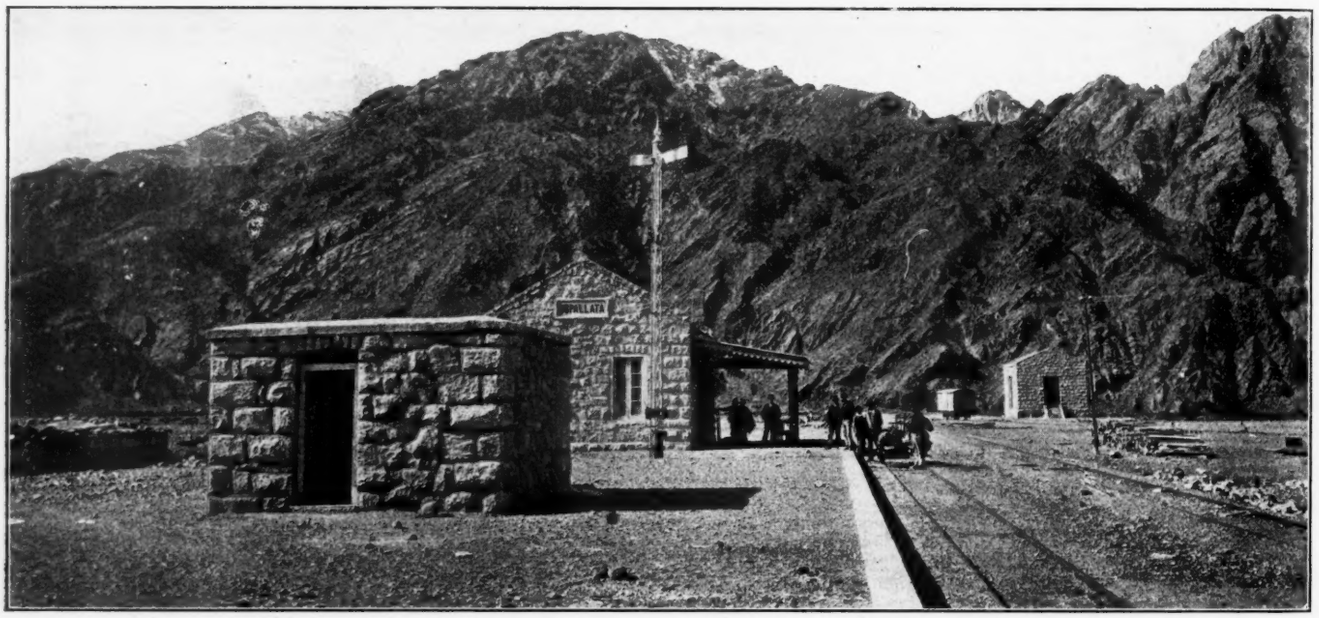
cannot be expected, though cattle will doubtless be carried right through some day, and soon, further than at present. Now they are taken out of the train some way down, rested for a day or two and then driven over the summit. Coaches run a certain distance and mules go over the pass when weather permits. Chile, however, is more important than the Pacific slope was before the completion of the first transcontinental railways of North America, and there must be much

TRAFFIC PROSPECTS.

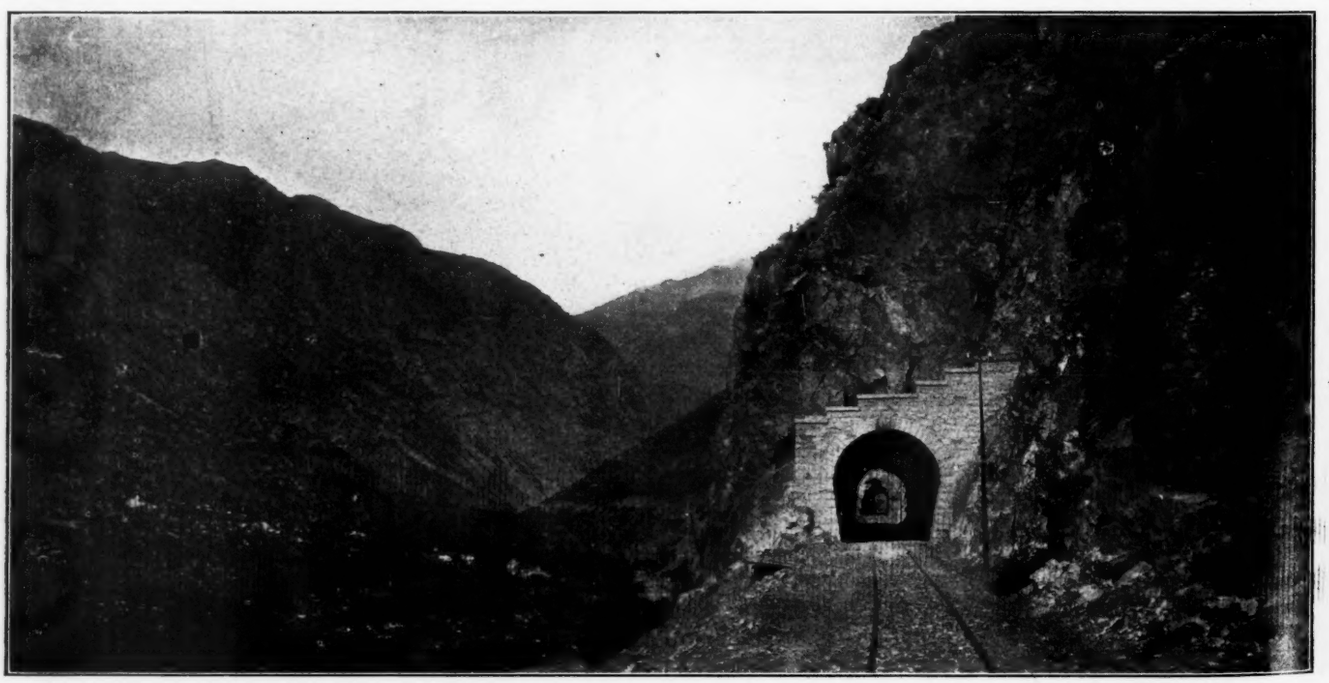
There are naturally some who wonder where the traffic to pay the interest on the line is to come from. Much goods

Rack at Inca Station.

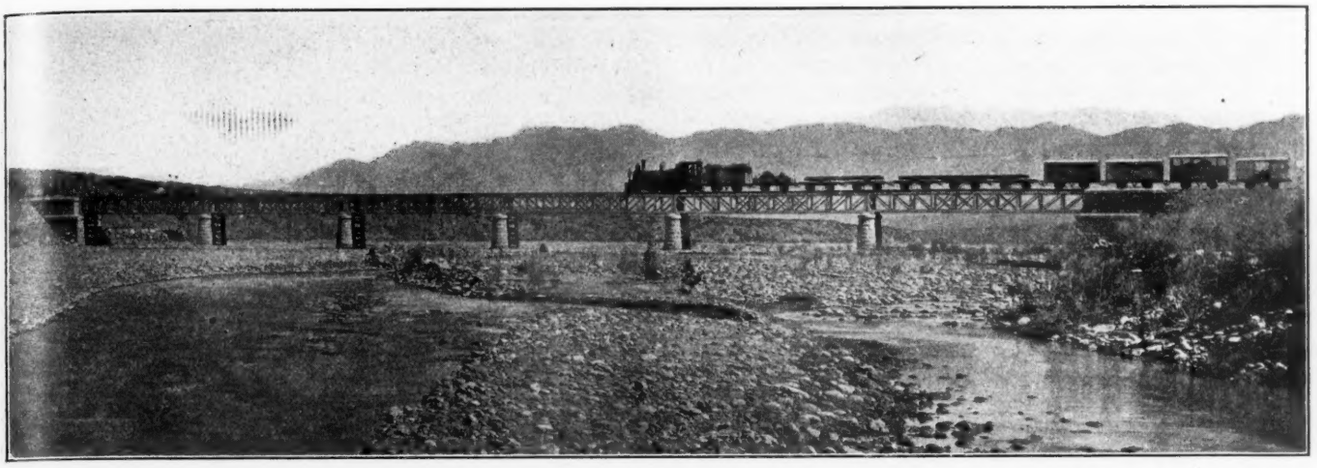
Railway Company's Hotel at Del Inca.



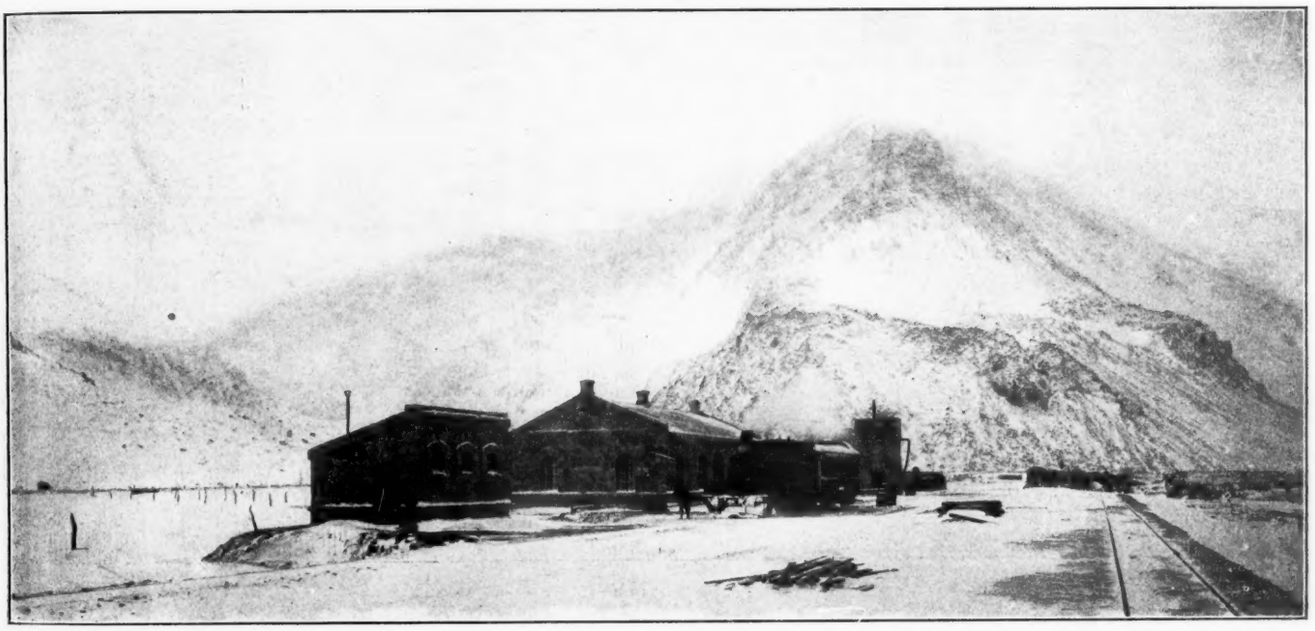
Uspallata Station.



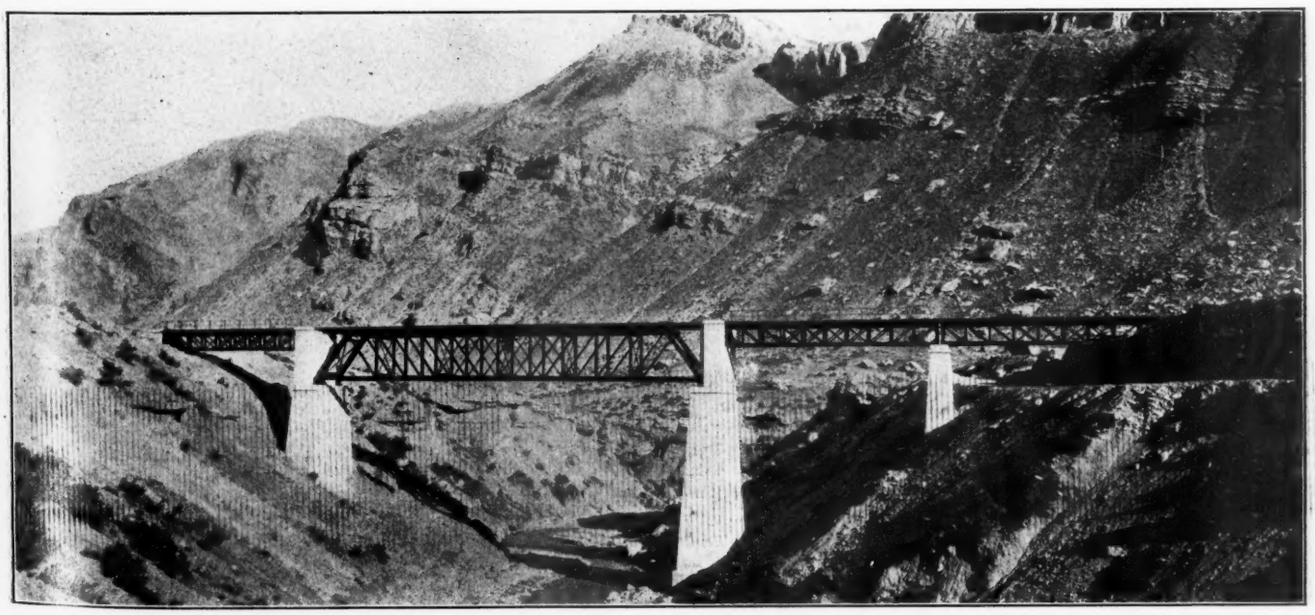
Las Chinches Tunnel.



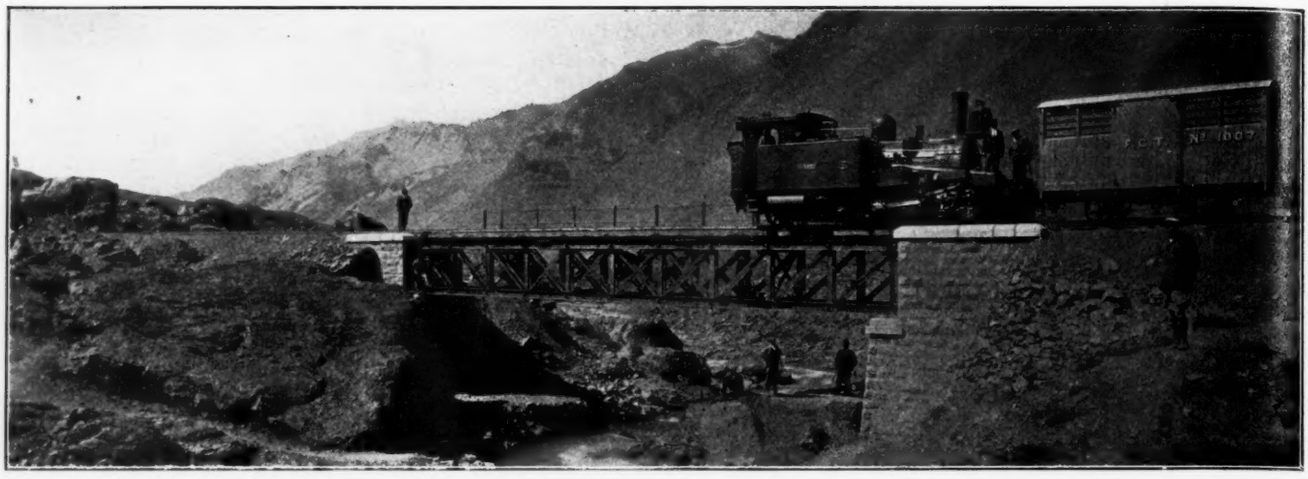
120-Meter Bridge.



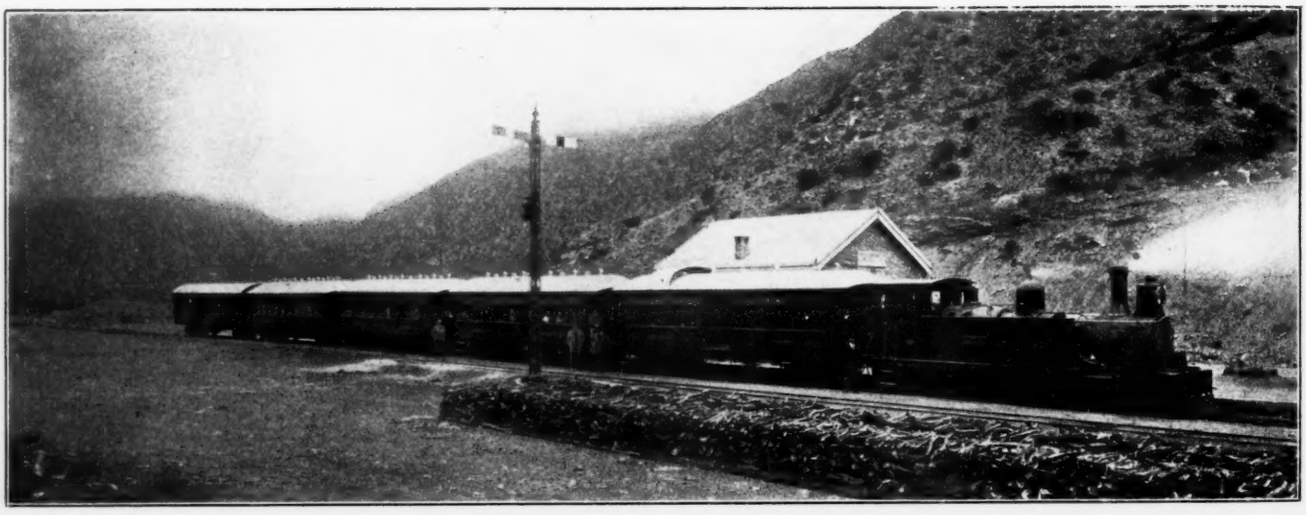
Las Vacas Station.



Bridge at Rio dos Horcones.



Tank Locomotive.



Train at Cacheuta.

Las Cuevas Valley.

intercommunication between two countries of this importance by a route which will be for many purposes the shortest. The first and probably for many years the only link between two such countries as Chile and Argentina must necessarily find considerable traffic. But in addition to this it will be the quickest route from Europe to Chile for a long time. But when all this is added together it still is obvious that before the Transandine Railway really can pay, new traffic has to be created. As regards passenger, and especially tourist traffic, much can be done with such remarkable scenery to attract passenger traffic not only from the Argentine but from Europe. The globe trotter, tired of India, Khartum or the Victoria falls, can find something quite new in the Cordilleras. The railway passes comparatively close to the Aconcagua, 23,000 ft. high, and through a pass which for extraordinary formation and colorings vies with the Grand Canyon of the Colorado river in Arizona. The photographs reproduced herewith give no indication of these colors, quite the most striking feature of the Andes, which lack vegetation and have not much snow. A mountain health resort with special baths and all kinds of outdoor sports has been made by the company at Puente del Inca as a further inducement. But to get the Andes known in Europe a "propaganda" is required and will doubtless be made. With such a propaganda "doing the Andes" will become a popular trip. At present the tourist traffic is not very great.

We left Mendoza at 6 a.m. on September 11 by a special train (see photo), there being normally only one train a week at present.

The locomotive was a North British and the train consisted of a saloon car by the Metropolitan Amalgamated Carriage & Wagon Co.; a kitchen, etc., coach built at the company's works at Mendoza; a covered wagon by Turner Bros., of Langley Mill. The line is, of course, meter gage, and wisely so, the minimum curve being 328 ft. radius and the maximum grade 6 per cent.; on the latter a rack locomotive (Abt system), built by Beyer, Peacock & Co., was used. From Mendoza to the tunnel mouth (there are no other tunnels of importance but that at the summit) is about 118 miles, although as the crow flies the distance is under 62 miles. The survey for the present line was, of course, preceded by many others, but seems to be quite the best, judging from a model shown me by Mr. Schneidewind, on which they were all set out.

One proposal, almost commenced, included a tunnel 15 miles long, with two spirals, all to be worked with steam locomotives.

Las Vacas.

Our party included Mr. Goudge, general manager of the Buenos Aires Pacific; Mr. Trery, chief engineer; Mr. Bowden, traffic manager; Mr. Sanders, assistant to Mr. Goudge; Mr. Marenjo, formerly manager of the Argentine Great Western, and now district representative for the Pacific Company; Mr. Stuart, engineer of the Transandine line, and Mr. Pearson.

The locomotives are fitted with two seats in front and the new-comer has to occupy one of these "for experience," which he certainly gets! At every curve (and there are many) the rider is firmly convinced it will be his last. The sensations resemble one's first experience of motoring, much increased. At that height and that hour the temperature is hardly such as to instil courage. Fifty-lb. rails are used, with a well ballasted track, the disrepair into which the line had fallen

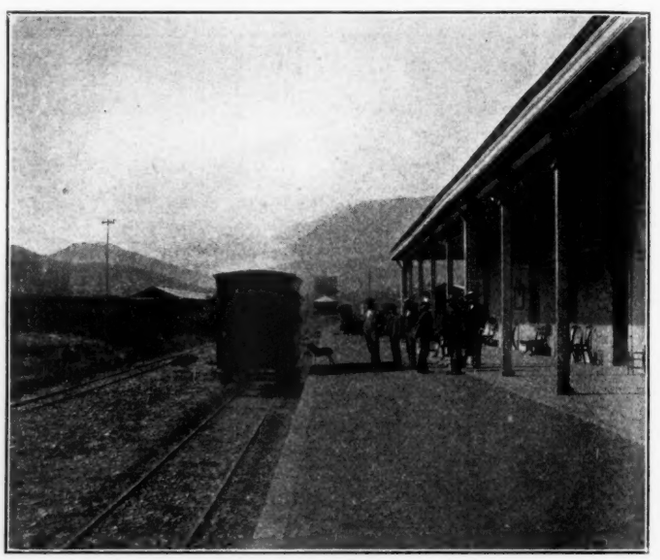
being now made good. For the first 15 or 20 miles the line ascends the Andean slope before entering the actual valley of the Mendoza river. From that point it follows this valley and is almost without a tunnel of importance until it reaches the great tunnel mouth. Here there are about 300 men at work for the contractors, Messrs. Walkers, Ltd. About half way up the line crosses a plain some seven or eight miles in extent surrounded by hills of such a nature as to indicate that it may once have been a crater. Perhaps the most striking things about the Andes as seen from the railway are their vivid colors and their absence of vegetation. The great brittleness and even softness of the rock of which they are composed, to which Darwin alluded, is also remarkable, resulting as it does in frequent stone slides. The railway has more to fear from stones than from snow. There are numerous slides of the type shown in the picture and it will be seen how extremely difficult it is to build a guard against them. Hollowing out a heap of loose stones is impracticable, and at present it has not been found possible in the worst places to do more than patrol the line. But more will need to be done. There is for 50 miles or so apparently

Near the Summit.

no population other than that connected with the railway, there being either no soil or insufficient rain fall or water supply for cattle or agriculture.

At the steepest portions of the line a triple rack (see photo) is employed, the engine being fitted with two sets of cylinders and working both rack and ordinary driving wheels simultaneously. The engine enters into the rack rail with scarcely a sound. At Puenta del Inca a strange natural bridge, the valley, hot springs and surrounding mountains have been purchased by the Pacific Company, which probably owns a higher peak than any other company in the world! There is a nice hotel run by the company at this place, of the usual Swiss type, cleanly and bright, and it bids fair to need extension as soon as the through trains to Chile are running. Various alternatives of breaking the journey here or elsewhere will, of course, then be offered. The special importance of the Cordilleras to the Pacific is the rarity of pleasure resorts in Argentina. The nearest seaside resort to Buenos Aires, Mar del Plata, is 300 miles by the Buenos Aires Great Southern.

We made a stay of only an hour or so at the Puente del Inca in order to complete our journey before dark. In de-



Los Andes Station.

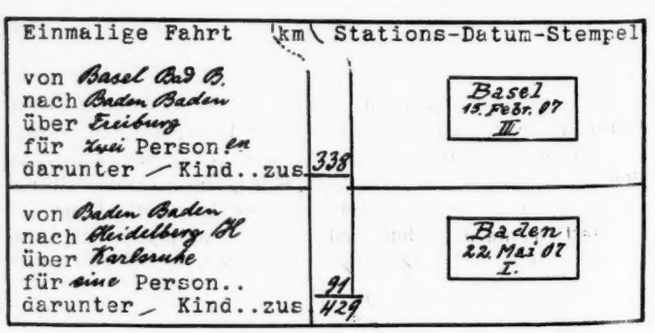
scending the pass speeds of 37 miles an hour were reached, but as a rule lower speeds are run. Mendoza was reached at 7 p.m.

THE BADEN 1,000-KILOMETER TICKETS.

BY ALBERT KUNTZEMULLER, PH.D.

The Baden State Railroad began issuing in May, 1895, kilometer coupon books for first, second and third class fares. These books, which are somewhat different in form from the mileage books in use on American railways, were sold during 12 years, until in 1907 the reform of the German passenger tariffs abolished them.

The coupon books were good for 1,000 kilometers (621 miles) and later, in 1901, 500-kilometer (311 miles) books were sold. They were good on all railways in Baden and on all trains. The 1,000-kilometer books were sold at 60 marks ($15) for the first class, 40 marks ($10) for the second class and 25 marks ($6.25) for the third class. The 500-kilometer books were issued for third class journeys only, and were sold at



Baden Kilometer Ticket.

12 marks 50 pfennigs ($3.15). The tickets could be used by the purchaser and by his family and guests. The book was signed by the purchaser at the time he bought it, and before each journey he wrote in on a coupon the names of the stations from which and to which he was going, together with the number of people who were to travel on the ticket. He then presented it at the ticket office, where the agent would write in the number of kilometers used up by the journey and add it to the number previously used. In this way the total number of kilometers of travel used would be brought forward from coupon to coupon until the total reached 1,000. The accompanying diagram shows two sample coupons.

The following summary shows the number of books (both 1,000 and 500-kilometer) sold in each of the 12 years that they were in use and also the amount earned from the sale.

Year.	No. of ticket-books sold.	Earnings.
1895 since May	72,794	$536,566
1896	87,082	627,576
1897	118,554	851,462
1898	138,273	983,676
1899	157,669	1,117,505
1900	173,796	1,222,654
1901	274,083	1,430,188
1902	392,923	1,689,529
1903	452,081	1,910,213
1904	511,919	2,083,650
1905	549,676	2,203,944
1906	562,369	2,303,623
1907 till May	260,357	1,223,555
Total	3,751,576	$18,184,141

In 1906 earnings from kilometer ticket sales amounted to 33.24 per cent. of total passenger earnings.

NEW METHOD OF HANDLING FREIGHT CLAIMS ON ST. LOUIS & SAN FRANCISCO.

BY SAMUEL O. DUNN,
Western Editorial Manager, *Railroad Age Gazette.*

On January 1, 1909, a new method of handling claims for loss of and damage to freight was adopted on the St. Louis & San Francisco. The method in use on the Frisco before the date mentioned was similar to that in use on most railways. Both investigations and settlements of claims were made by G. F. MacGregor, freight claim agent, St. Louis, Mo., who conducted the investigations by direct correspondence with the division superintendents, agents and other officers and employees. Under the new method investigations of all claims are made in the office of E. D. Levy, superintendent transportation, Springfield, Mo., while the settlements continue to be made through the office of Mr. MacGregor, the freight claim agent. The new plan first was suggested and the details of it were worked out by Mr. Levy. The "Loss and Damage Freight Bureau" in his office is conducted under his supervision.

Until this plan was adopted on the Frisco it was the practice on American railways—perhaps without an exception—for freight claims to be handled entirely by the traffic or accounting department. This new method is predicated on the theory that this almost universal practice is wrong. Every just freight claim that is presented grows out of a failure of transportation. For such failure the transportation department is responsible. The payment that is made when the claim is settled is a transportation expense. The only department that can remedy the conditions that cause such failures of transportation is the transportation department. The theory is advanced, therefore, that it is just as illogical to call on the traffic or accounting department to explain and remedy transportation failures as it would be to call on the transportation department to explain and remedy mechanical failures. It is extremely desirable that successful investigations and just settlements of claims shall be made promptly. It is far more desirable that the failures of transportation out of which claims grow should be prevented; and what means is so apt to accomplish this as to require the transportation department constantly to investigate the causes of loss and damage to freight and make the improvements in methods and applications of discipline that seem needed to remove those causes.

As this reasoning implies, the purpose of the new method is dual. It is sought

(1) To make investigations of loss, delay or damage of freight with such despatch that before a claim is presented the Loss and Damage Freight Bureau usually will have made a complete investigation which will show at once whether the claim ought or ought not to be paid; and

(2) To collect and supply to the superintendents and other operating officers information that will show conclusively where the fault lies for any failure of transportation, so that needed discipline may be administered, that the service rendered to the public may be improved without its cost to the road being permanently increased and that the amount of money paid out by the road on claims may be reduced to a minimum.

THE ORGANIZATION REQUIRED.

The organization required and monthly expenses incurred to carry out the new plan are approximately as follows: One chief clerk, $150; 1 assistant chief clerk, $125; 1 claim clerk, $100; 1 claim clerk, $90; 1 O. S. & D. clerk, $100; 1 O. S. & D. clerk, $90; 5 stenographers, $60 each, $300; 1 general clerk, $75; 1 general clerk, $50; 1 indexing clerk, $25; 1 indexing clerk, $20; 2 O. S. & D. file clerks, $25 each, $50; 2 claim file clerks, $30 and $20, $50; 1 office boy, $20; 10 traveling agents, $100 each, $1,000; traveling expenses for traveling agents, $50 each, $500. This makes a total monthly expense of $2,745, or an annual expense of $32,940.

As the bureau tries to have an investigation made of every case of loss of or damage to freight finished before a claim for it is presented, it will be desirable to describe the method of handling O. S. & D. reports before taking up the specific matter of the handling of claims. The method of handling O. S. & D. reports is, in fact, the foundation of the whole plan and a goodly part of the superstructure.

HANDLING O. S. & D. CLAIMS.

The work of the bureau begins whenever a consignment of goods checks short, over or damaged, whether at the point of origin, at a transfer station or at destination. The transfer clerk or agent who detects the over, shortage or damage is required to send a report to the office of the superintendent of transportation at Springfield at once on a blank provided for that purpose. When these reports are received in the bureau at Springfield they are indexed in a card index, each report three ways and on three separate cards. Symbol letters are assigned to the various reports, as follows: Short reports, "S;" over, "O;" bad order, "D;" miscellaneous, "M;" and dead over, "C." In addition to the symbol indicating the nature of the report, a symbol is assigned to each month; "J" standing for January, "F" for February, "M" for March, "A" for April, "B" for May, "K" for June, etc. The first short report indexed in January, therefore, would be marked "SJ-1;" the first over report, "OJ-1;" the first bad order report, "DJ-1," and the first miscellaneous report, "MJ-1."

The O. S. & D. reports are sorted the first thing each morning, the reports coming from the transfer stations being separated from the rest and filed away in date order, without indexing, because later there should be received reports from the various stations covering all shipments which the transfer stations have reported over, short or damaged. The transfer O. S. & D. reports are checked against the over, short and bad order card index files, and when it is found that a station failed to render a report a tracer is sent out. When a station report is received the transfer and station reports are made a part of the same file. The O. S. & D. reports received from other than transfer points are numbered in numerical order, the monthly symbol being stamped before the number. Rubber stamps are used for the symbols and numbering machines for numbering to make sure that correct file references

will be got for each report. All correspondence about the matter to which a file relates bears its file number and symbol; for example, "DJ-3000" would be put on all papers relating to the investigation of the 3000th bad order report filed in January. The paper used for the short reports is blue; for the over reports orange; and for the bad order reports yellow; and as the index cards for each kind of report are the same color as the paper used for that kind of report, the index cards cannot be filed away incorrectly.

Short reports are indexed three ways—(1) by stations reporting the freight short, (2) by articles and (3) by foreign destination, if any. Over-reports are indexed (1) by stations reporting "overs," (2) by articles and (3) by destinations. Bad order reports are indexed (1) by stations reporting the damage and (2) by foreign destinations. All index cards are written on typewriters, each report being indexed at one writing by the use of different-colored carbon papers, red carbons being used for articles, green carbons for destinations, and originals for stations reporting. The following information is shown on the index cards: At the top of the card, the report number and symbol, and farther down the station reporting the freight, the station O. S. & D. number and date, consignee and destination, articles over, short or damaged, waybill reference and date. For example:

OJ 1650

Van Buren, Ark. No. 215, 7/20
Hanna Groc. Co., Berryville, Arkansas.
1 box smoked meat.

The O. S. & D. reports are assigned numbers and symbols according to the month in which the freight to which they refer was billed, and the index cards are filed away in monthly order, to facilitate looking up files when claims are presented. O. S. & D. investigations are also filed in numerical order, those for each month being kept separate.

INVESTIGATIONS OF SHORTAGES OF FREIGHT.

Investigations of shortages of freight are not begun until seven days after a shipment has checked short, because experience has shown that fully 50 per cent. of the short reports are followed within a week by "O. K. short" reports, these latter being reports rendered by agents when they receive consignments that they previously have reported short. Meat shortages are handled according to a special system which will be described later. When a shortage of a consignment of any article except meat is reported it is checked against the over reports already on hand; and often it is found that a shortage at one station is accounted for by an over at another station. If this checking does not clear up the matter a forwarding is secured to find out whether there has been an error in billing. For a similar purpose transfer records are secured. All cars in which it is possible that the freight might have been loaded are traced to where they were made empty. A letter is sent to the agent at destination instructing him to call on the consignee and see if he did not receive the goods; if the shipment moved beyond the Frisco's rails the agent at its destination on the connecting line is asked to call on the consignee.

If the investigation, as thus carried on, fails, the papers are sent as a last resort to a traveling agent with instructions to make a thorough investigation personally. The traveling agents are a very important part of the mechanism of the bureau. Their use is one of the most interesting and important departures made from past methods of handling claim matters. Their duties are numerous. They are on the road all the time, spending much of the time riding local trains, and have general supervision of the handling of freight in their territories. They stimulate conductors to use proper methods in breaking down merchandise cars after they start to peddle; prompt station agents to keep proper station records and seal records, and to make accurate check of freight from cars as well as to consignees; check up freight on hand at stations and do all they can to keep it moving rapidly; see that agents know how to mark freight properly and do so before forwarding it; find out the number of claims and O. S. & D. files agents have on hand unanswered and see that they are handled as promptly as practicable; make recommendations for improvements in methods and increase of forces at stations, etc. They render two weekly reports, one giving the stations they have visited and describing the conditions there, the other giving lists of the claims and O. S. & D. files at the stations they have visited, the length of time that these papers have been there and the reasons why, if any, the handling of any of them has been badly delayed.

When the traveling agent receives the papers concerning a short report it is his duty to make a thorough investigation on the ground of all the circumstances surrounding the shipment. He goes directly to shippers, consignees and employees, tracing the shipment through the hands of everyone whose hands it passed through as far as he can. He calls on the superintendent of the division for assistance when he finds it necessary. In innumerable instances the traveling agents have been able to locate the causes of shortages and find the missing goods or fix the responsibility for their loss or theft when no other methods of investigation would have availed.

The "O. K." reports are checked daily against the index cards for file references, and attached on the same date. Over reports are attached showing mishandling of shipments before investigation is started. Reports of wrecks and robberies are indexed by the date of the wreck or robbery; by the point where the wreck or robbery occurred; and by the car number and initials. They are filed according to the two ending digits of the car number. These reports also are checked against the loss and damage files.

HANDLING MEAT SHORTAGES.

It was early found that many of the shortages of meat reported were due to errors made by employees of the packing houses in billing meat distributed from peddler cars. The system was therefore adopted of writing the packers for their records, when a shortage of meat was reported, which often disclosed that the shortage was due to some mistake of the shipper and not of the road. This has resulted in a steady reduction of errors made in billing meat to be distributed from packers' peddler cars. At the same time that the packing house is asked for its record, the agent at destination is asked by letter if the missing goods have been received there and directed to call on the consignee and find out if the shipment checked O. K. with his invoice. If by these means the cause of the mistake is not detected and goods are not found, the shortage is handled very much like other shortages. By this method the number of claims filed by one packing concern was reduced from 108 in the first two months of 1908 to 60 in the first two months of 1909.

HANDLING "DEAD OVER" FREIGHT.

All reports showing "dead over" shipments—that is, shipments without marks—are separated from the rest of the over reports and assigned a separate file. As soon as a report is indexed it is checked against the short index cards. If this checking does not disclose a shortage somewhere which can be filled with the "dead over," after being held at reporting station for ten days the goods are sent to the "dead over" room which has been fitted up in the freight house at Springfield, Mo., and sold if there is no hope of ascertaining the owner. Springfield being a good business center, a market is found there for most of the over freight at satisfactory prices. All over freight is carefully marked and recorded so that it may be readily distinguished. "Dead over" freight is sold twice a month, and a full statement of sales is sent to the freight claim agent. All dead over freight that can be used by the store department is turned over to that department, which allows proper credit for same.

investigations regarding damage to freight are handled directly with the division superintendents. Reports showing that damaged shipments originated on the rails of other roads are referred to the junction agent for a report on its condition when it passed his station. All returned shipments of shoes are invoiced at the point of origin, if on the Frisco's rails, and if not, at junction point and destination, and these invoices are attached to the damage reports; and from the various reports it usually is possible to determine whether there has been pilferage in transit, and whether the consignee is trying to secure payment for goods he has received.

HANDLING OF CLAIMS.

As was the case before the present system was adopted, all claims are sent direct to the freight claim agent at St. Louis, and are forwarded by him, after he has backed and recorded them and checked them against the waybills, to the Loss and Damage Freight Bureau for investigation. This procedure is followed regarding claims of every nature, even when loss or damage is apparent at destination and has been verified by the agent when presented. The freight claim agent continues, however, to handle claims with foreign lines.

When claims are received by the Loss and Damage Freight Bureau from the freight claim agent they are first sorted according to the months shipments were billed, and are then checked against the O. S. & D. index cards for the respective months, the short claims being checked against the damage index cards, as well as against the short index cards, and vice versa, because agents do not always make correct reports. The claims are also checked against the "wreck and robbery" files. As already stated, as a result of this process of checking a file regarding the shipment to which the claim relates usually is found, and in a large majority of cases contains information that enables the bureau to determine at once whether or not a claim should be paid. All claims are filed according to the last two digits in the number. There are two file cases, one for open files and one for closed files. Each case holds 100 boxes, which are numbered 00 to 99, and Claim 533,299, for example, would be found in box 99. The claims arising from shipments made in 1909 are indexed the first thing each morning, sorted according to class, checked against the O. S. & D. index files and given to the claim clerk of the bureau for handling, and a majority of 1909 claims are returned to the freight claim agent with statement of facts so that he can make prompt disposition on the same day that they are received, or the day following. Claims on which the bureau has over, short or damage files, and which it is desired to take up with division superintendents with a view to having employees disciplined for the acts or omissions that have given rise to them, are returned to the freight claim agent with a statement of facts, from which he can readily determine the liability or non-liability of the company and with a statement that the O. S. & D. file has been retained for further investigation. This is conducted under the claim number and when it is completed the file is sent to the freight claim agent for consolidation with claim papers. This method prevents delay in declining or paying claims while responsibility is being fixed between the different employees. Claims for which the bureau does not have O. S. & D. files and which it is desired to take up with division superintendents for discipline are returned to the freight claim agent with a statement of facts, in order that he may make prompt settlements, and as soon as he has made settlement they are returned by him to the superintendent of transportation, who then handles them with the division superintendent in the same manner as claims on which he has O. S. & D. files. When the loss and damage freight bureau has not already an O. S. & D. file of the shipment to which a claim relates, the claim is taken up and handled just as an O. S. & D. report would have been if one had been received. If correspondence with shippers, consignees and employees of the road does not clear up the facts about the claim it is turned over to the traveling agent for the same kind of an investigation that he would make of a shortage that could not be explained.

The very thorough investigation that is made in the office of the superintendent of transportation of O. S. & D. reports puts this department in possession of information which, in connection with the information that it would get anyway, in the ordinary course of business, enables it both to get at the facts about claims with greater celerity than any other department could and to apply corrective measures that eliminate the causes of claims. Under the method obtaining on most roads the clerks in the offices of the freight claim agent and of the division superintendent exchange a large number of fruitless letters regarding a claim, the main object of the writers being apparently to get rid of the papers. As a result, agents, conductors and other employees often are bewildered with numerous unnecessary letters. Conductors in many cases are asked for their records on the handling of certain carloads of freight—the basis of the claim being, perhaps, delay to a car—when the records of the office of the superintendent of transportation show that each conductor who handled the car made 10 or 15 miles an hour with it. If the claim had come to the office of the superintendent of transportation in the first place the car accountant could have made a movement slip disclosing at once where the delay, if any, occurred.

The superintendent of transportation has nothing directly to do with the administration of discipline. But when he receives an over, short or damage report from a conductor, and does not receive one promptly from the proper agent, he calls the attention of the proper superintendent to the fact in a mimeograph letter. Similarly, when an agent renders an O. S. & D., but does not render it promptly, the fact is brought to the attention of his superintendent in a mimeograph letter. The attention of the superintendents is in like manner called promptly to other shortcomings of agents, conductors and other employees. When the investigation of an O. S. & D. report or a claim by a traveling agent reveals the failure of some employee to do his duty the facts are promptly laid before the superintendent. Employees find, in consequence, that their shortcomings are quickly detected and brought home to them, and all are stimulated to do more careful and faithful work, and the efficiency of the service is increased. The improved service not only reduces the amount that must be paid out on claims, but strengthens the position of the traffic department in soliciting competitive business—a factor, the Frisco management believes, that will steadily increase in importance.

THE RESULTS SECURED.

What concrete results have been secured by this method of handling claims? The records show that for 84 per cent. of the 1909 L. C. L. claims thus far received the Loss and Damage Freight Bureau has had on hand files, and that in 75 per cent. of the cases the records already on hand were so complete that a recommendation could be made immediately to the freight claim agent either to pay or reject the claim. The system has made possible considerably greater promptitude in disposing of claims, and the total number of claims filed with the freight claim agent has been reduced. The following table gives the number of both local and foreign claims filed during the first eight months of 1909 and during the same months of the preceding year:

	1908			1909		
Month.	Local.	Foreign.	Total.	Local.	Foreign.	Total.
January ...	6,138	1,226	7,364	3,794	1,655	5,449
February ...	5,143	926	6,069	3,464	1,614	5,078
March	5,145	1,074	6,219	3,952	2,290	6,242
April	5,346	1,513	6,859	3,934	1,729	5,663
May	4,723	1,230	5,953	3,216	1,550	4,766
June	3,242	1,610	4,852	2,565	2,028	4,593
July	3,248	1,504	4,752	2,387	2,084	4,471
August	3,098	1,612	4,710	2,616	1,689	4,305
	36,083	10,695	46,778	25,928	14,639	40,567

Net decrease in local claims filed.....10,155, or 28.1 per cent.
" increase in foreign claims filed..... 3,944 " 36.9 " "
" decrease in total number claims filed.... 6,211 " 13.2 " "

The reduction in local claims indicates that there has been

a substantial improvement in the handling of shipments originating on and destined to points on the Frisco. It is difficult to account for the increase in foreign claims, which cover shipments handled over two or more lines, as there has been no difference in the methods of handling the two kinds of freight on the Frisco's rails.

For the fiscal year ending June 30, 1908, the total amount paid out in claims by the Frisco proper was $643,354.41, or 2.85 per cent. of the amount of gross revenue from freight traffic. The amount paid out in freight claims for the fiscal year ending June 30, 1909, was $489,984.55, or 2.06 per cent. of the gross revenue from freight traffic. The reduction in freight claim payments was $153,659.86, or 23.8 per cent., while the increase in freight traffic was $1,554,292.81, or 5.1 per cent. The increase in gross earnings from freight traffic for the first eight months that the new plan was in operation was $2,431,973.69, or 18.1 per cent., while the reduction in freight claim payments was $129,745.48, or 28.6 per cent.

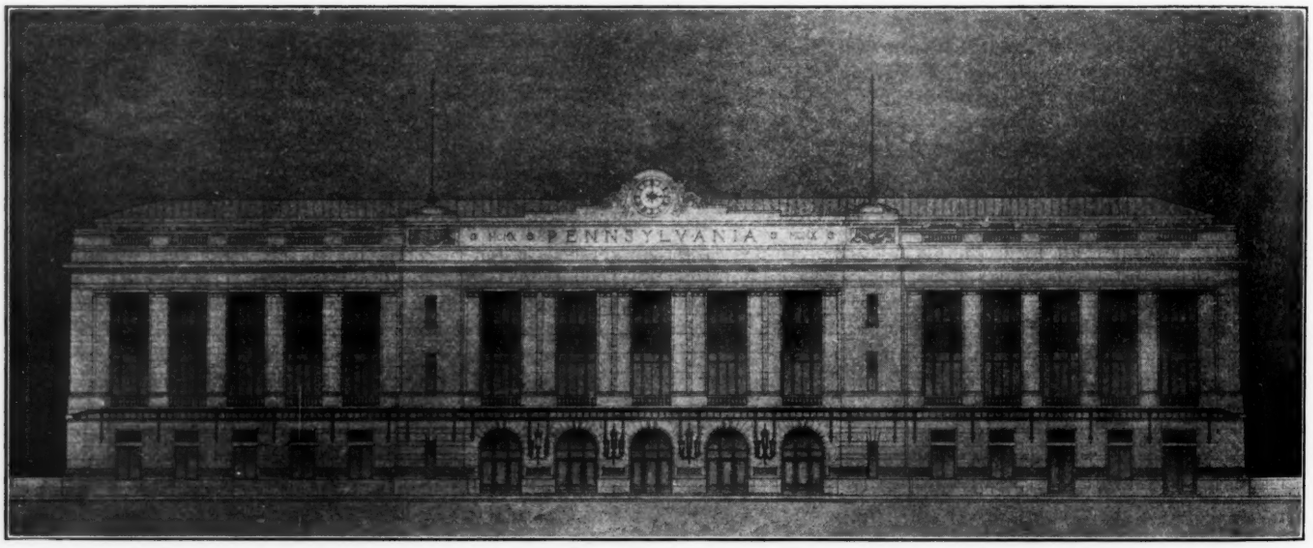
The foregoing figures cover only the Frisco Lines north of the Red River, over which only have Mr. Levy and Mr. MacGregor jurisdiction. Probably they do not do full justice to the improvement that has been made, for everyone familiar with such matters knows that if a freight claim department did not receive a new claim for six months it would go on paying out money on old claims that it had had under investigation. Furthermore, shippers often long delay presenting their claims. A large part of the money paid out in the first six months of 1909 consequently was in settlement of claims that grew out of shipments covering a period of several months before, and if the new plan actually is achieving the results that it seems to be the reductions both in the number of claims received and the amounts paid out in settlements should be much greater proportionately in the last six months of this year than they were in the first six months. Mr. Levy believes that, besides expediting settlements, and thereby pleasing patrons and winning new business for the road, his plan will reduce from $100,000 to $200,000 per year—on the basis of present freight traffic—the amount that the road has to pay out for loss and damage to freight.

Mayor Lehr, of Duisburg, Prussia, at a recent meeting of his City Council, said: "There was a time when we were promised great things from the operation of the street railways by the city. Now it is different. The street railways are no longer so profitable as they were, and we have to consider carefully whether the city should take such a complicated business into its own management. Just as soon as the city comes into the possession of a street railway the citizens make the most far-reaching demands on the management, and if but a part of these are satisfied, up go the expenses and down go the earnings. No practical man at this day will take the position that a street railway should be taken over by the city at any price. First of all we must inquire What will be the financial result? And it cannot be concealed that the prospect of good business becomes less from year to year. A city may very well secure a financial interest in such an undertaking, in order to secure influence in it, but the technical operation had better be left to the private companies, for a directory with business training can doubtless make more out of it than a city administration."

PENNSYLVANIA STATION AT BALTIMORE.

The Northern Central, a subsidiary of the Pennsylvania, has prepared plans for the new passenger station at Baltimore, Md., to be built on the site of the present station between Charles and St. Paul streets. The present building and train shed will be removed.

The new station will be 60 ft. wide and 275 ft. long. It will be of classical design and will be built of stone, terra cotta, brick and ornamental metals. The interior will be finished in marble, plaster, hardwood and leaded glass. The structure will be fireproof and supported by a steel frame. The two upper floors will be used for the offices of the company.



Pennsylvania Station at Baltimore.

The main waiting room, 64 ft. wide, 95 ft. long, and 35 ft. high, will occupy the center of the street floor. Adjoining it will be ticket offices, telegraph and telephone offices, newsstand, retiring rooms for men and women, lunch room, dining room, parcel and baggage rooms. The entrance to the main waiting room will be reached by walks and driveways from St. Paul and Charles streets, and the floor will be slightly above the level of Charles street. The waiting room will be lighted by ornamental leaded glass sashes placed in the ceiling.

A covered lobby 330 ft. long and 28 ft. wide will extend along the track side of the station and connect with Charles street bridge, allowing passengers to go to and from trains without entering the building proper. An enclosed lobby 50 ft. wide will extend across the seven passenger tracks, which will be 18 ft. below the main floor of the station. This lobby will open into the main waiting room of the station. Eight stairways will lead to the train platforms, which will be 20 ft. wide and from 600 to 1,100 ft. long; the latter will accommodate a train of fifteen cars. The platforms will be protected with ornamental steel shelters or canopies.

On the side of the building facing Jones Falls a driveway

will be built between St. Paul street and Charles street, giving vehicles access to the street floor. Another driveway will lead from St. Paul street down to the track floor; the latter will contain the main baggage room, Adams Express room, station master's office, employees' lockers, dining rooms, Pullman commissary's rooms, kitchen, and store rooms.

The driveways and walks around the building will be provided with heavy ornamental railways with clusters of electric lights at intervals, and the unoccupied ground around the station will be planted with grass and shrubbery. Outside of the building at the St. Paul street end will be a large standing space for cabs.

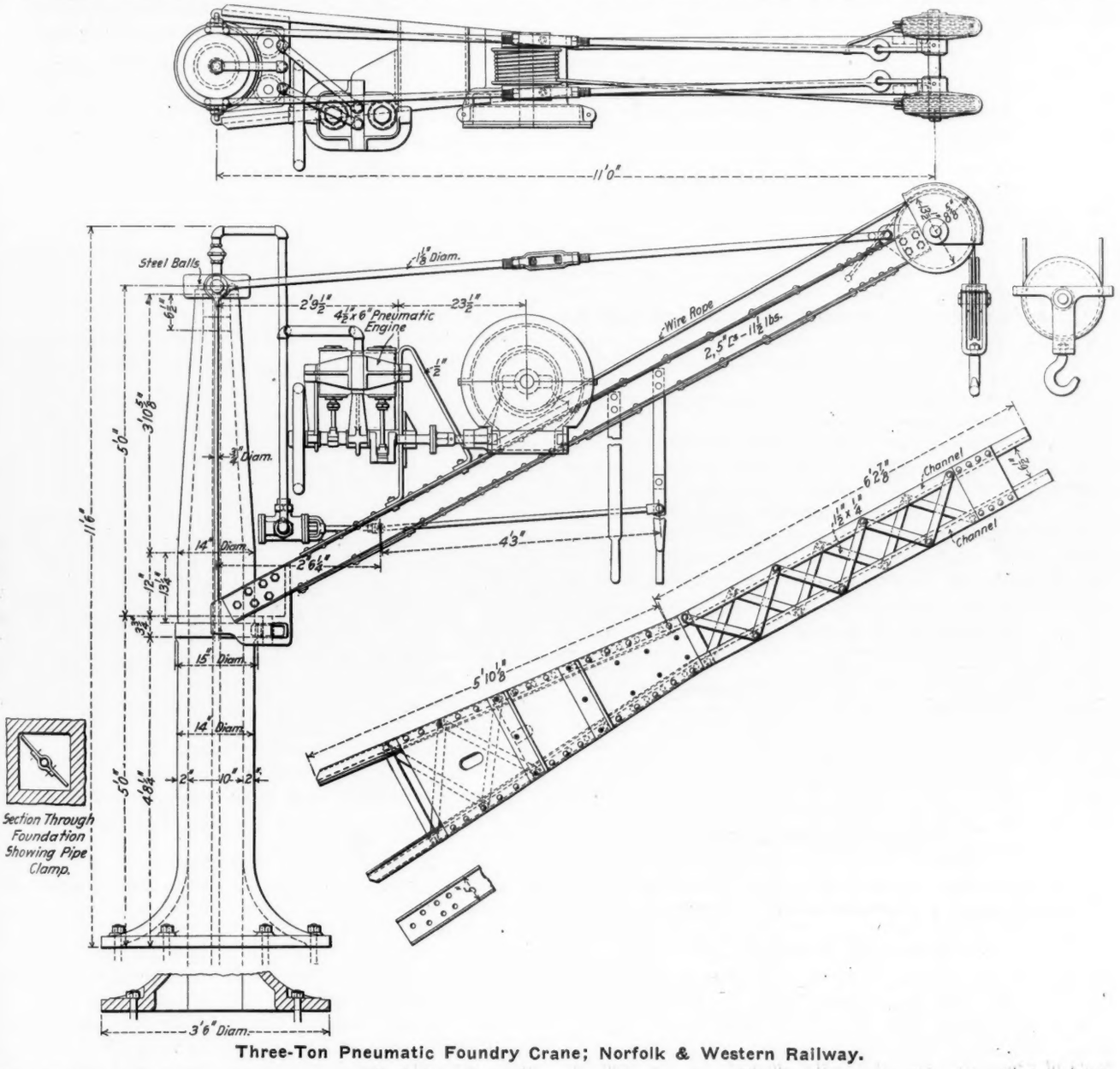
The office floors will be reached by four elevators and two large stairways, giving access to each end of the building. There will be ample space in the two upper floors to accommodate all of the Baltimore offices of the company.

The scheme for the general improvements provides for many track changes, and in making them there will be installed both east and west of the station an entirely new system of automatic signals and interlocking switches.

The new station was designed by Kenneth M. Murchison of New York. Mr. Murchison was the designer of the Lackawanna stations at Hoboken, N. J., and Scranton, Pa. His plans were selected from eight plans submitted in competition. The committee which made the selection was composed of H. Walters, Michael Jenkins, Norman James, T. N. Ely, President McCrea, and Vice-Presidents Rea and Atterbury, with William L. Baily as advisory architect.

THREE-TON FOUNDRY CRANE.

In the Roanoke foundry of the Norfolk & Western, illustrated in the *Railroad Age Gazette* July 16 and 23, there is a foundry crane in use that was designed and built at the shops. It is a post crane of three tons' capacity, upon which a small air engine is used as a source of power for the hoist-



Three-Ton Pneumatic Foundry Crane; Norfolk & Western Railway.

ing. The post is bolted to a foundation set in the floor and the boom swings around it. The thrust of the boom is taken by a collar of the post about 5 ft. from the floor and is fitted with a roller to lower the frictional resistance in turning. The cap at the top is also provided with steel balls for the bearing for the same purpose. The boom is of 5-in. channels, with the closely riveted lattice bracing, as shown.

The engine is a two-cylinder air engine, with cylinders of 4½-in. diameter and 6-in. stroke, with cranks at right angles, and it is also provided with a fly wheel on the crank shaft.

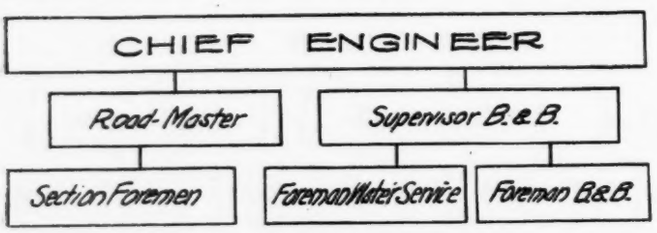
The shaft bears a worm meshing in with a gear on the clutch of the hoisting drum which is operated by a lever shown in the side elevation. Another lever conveniently located is for manipulating the throttle so that hoisting and lowering can be done from any location. The swinging is done by pushing the load or the crane by hand.

The boom is stayed by two 1⅛-in. rods that can be adjusted by turnbuckles to take up any wear or working out of alinement, and the hoisting rope is of ½-in. wire.

ORGANIZATION FOR A BRIDGE AND BUILDING DEPARTMENT.*

The relations between the bridge and building department and the road department are so close we believe the best results can be secured by having both under the same head.

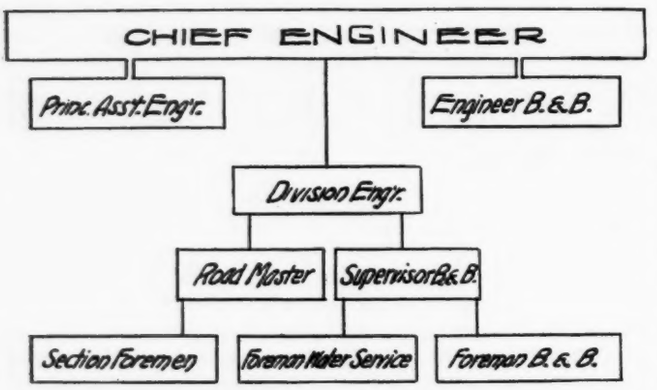
We have prepared diagrams showing an organization suitable for roads having 1,000 miles or less, 3,000 and 6,000 miles of track. For a road having 1,000 miles or less we have shown the head of the B. & B. department as chief engineer.



Organization for 1,000-Mile Road.

To him report one or two supervisors who are in charge of the B. & B. foreman and water service men.

For a road having 3,000 miles of track we have shown as B. & B. department head a chief engineer with an engineer B. & B. as a member of his staff, it being the duty of the staff officer to furnish plans and look after the execution of the work while the chief engineer directs the policy. Reporting to the chief engineer is an engineer maintenance of way, to whom six division engineers report, who in turn



Organization for 3,000-Mile Road.

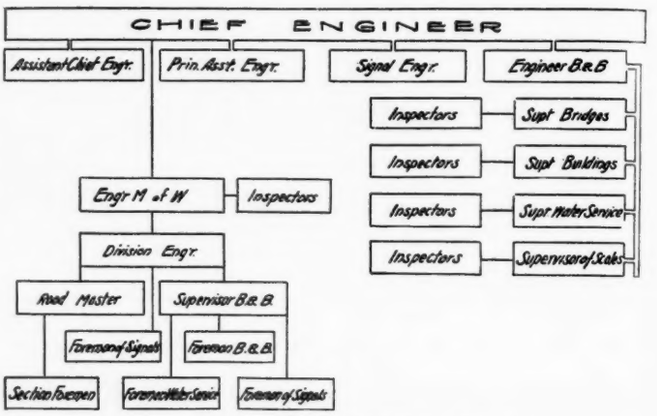
each have a supervisor of B. & B., who is in charge of the B. & B. foremen and water service men.

For a road having 6,000 miles of track we believe the following organization will be very effective:

Chief engineer is the head, with an engineer B. & B. as a member of his staff, to whom report a superintendent of bridges, superintendent of buildings, superintendent of water service, and supervisor of scales, each of these having two inspectors. Reporting directly to the chief engineer are two engineers maintenance of way, each having six division engineers and each division engineer having one supervisor of bridges and buildings who is in charge of the B. & B. foremen, water service and scale men, each B. & B. foreman having a district of about 125 track miles. Under each supervisor is a water service foreman with an assistant to look after all repairs to water stations, and one thoroughly competent scale carpenter to look after all repairs to scales.

A road of this size should be properly equipped with sufficient tools to enable the superintendent of bridges to have a force in the field for the construction of culverts, masonry and erection of steel bridges.

The superintendent of buildings and superintendent of



Organization for 6,000-Mile Road.

water service should also have sufficient force to handle all new work in their respective lines. This applies to new lines as well as existing ones.

*From a committee report to the American Railway Bridge & Building Association.

AFRICAN RAILWAYS.

A U. S. consular report gives the following information relating to railway building in Africa:

The governor of German East Africa opened the 28-mile branch line from Mombo to Bouiko on June 27, and also a light railway connecting Mombo with the Choume forest. The former line is of great importance since it passes through a country where animal transport is impossible owing to the prevalence of the tsetse fly. The colonial minister has decided to continue the line to Kilmandjoro, owing to the strong representations from the colonists.

On June 22 the earthworks of the Upper Kongo-Great Lakes Railways were completed up to kilometer 240 and rails were laid up to kilometer 164 on the Kindu-Congolo line. The Kindu-Congolo line has a length of 217 miles and will be completed in February, 1910. The temporary bridge on the Lufubu river has been completed. This bridge has one truss of 164 ft. and several of 49 ft.

On the Stanleyville-Ponthervillle line, which is the first section of the all-Belgian route to Katanga, repairs have been executed. The serious damage recently caused to the line by the heavy floods have been repaired and traffic is again going as usual.

The report on the Egyptian State Railways and Telegraphs just published for 1908, shows an increase in work and extensions during the year. Many requests for new stations were received, but the trained staff to work them does not exist. Men are being trained as rapidly as possible, but pace has to be kept with the new signaling system which is being installed everywhere; the coal consumption has been 11.8 kilos per kilometer, as compared with 11.2 in 1907; 325 engines have been fitted with vacuum brake, 13 having front connections, 18 having steam brake. Considerable new passenger stock, including 26 first-class carriages, has been brought into service; also 56 animal vans and 10 vegetable and fish vans. Many additions were made to the Luxor-Assuan line.

General News Section.

Committees of all the brotherhoods are said to be making very frequent calls on railway managers, both in the East and in Chicago, with a view to securing increases of wages.

At the Brooklands bowl-shaped track near London, England, on Monday last, Auguste Hemery drove an automobile a half mile, with a flying start, at the rate of 127 miles an hour.

The Bethlehem Steel Company has made increases of about 10 per cent. in the wages of the men in the machine shops, foundries, blast furnaces and yards. The Reading Iron Company has also made increases in all departments.

The Lake Shore-New York Central line, with its new timetable of Nov. 7, put on a 22-hour train from Chicago to New York, not before announced. It is known as No. 6 and leaves Chicago daily at 10.15 a. m. and arrives at New York at 9:15 a. m.

The freight tariffs now in force on the railways west of Chicago provide for a charge of 1½ cents per 100 lbs. on freight billed at carload rates (on the assumption that the consignee will do the unloading) if such freight is unloaded into freight houses.

Telephone circuits for train despatching are now in use on the Burlington system to the extent of 2,500 miles of road, and on more than half of this mileage there are no telegraph circuits in use, the telephones being used not only for all railway business, but also for Western Union messages.

A press despatch from New Haven says that after a long conference between General Manager Higgins, of the New Haven road, and representatives of dissatisfied clerks, the clerks had gone away satisfied. Press despatches last week said that many hundred clerks of the company were taking action looking to a strike.

The Chicago Great Western will put a General Electric gas-electric motor car in service on November 14 for local passengers on its line between St. Joseph, Mo., and Parnell. The car will make the run of 51 miles in two hours. The purpose is to give, as nearly as possible, the same kind of service as would be given by an electric interurban car.

The New York, Chicago & St. Louis is to put in telephone train despatching equipment for its line from Conneaut to Bellevue, 132 miles. There will be 28 regular station equipments, with a number of siding telephones to enable the train crews to get into direct communication with the despatcher. Western Electric telephone train despatching apparatus and Gill selectors will be used.

In the United States district court at Pittsburgh, Pa., on Tuesday last, in the suit of the United States against the Baltimore & Ohio for violation of the law regulating the proportion of cars in trains which must be equipped with continuous brakes, Judge Orr granted a nonsuit. According to the despatches the government will take the case to the United States supreme court.

The president of the Philadelphia Rapid Transit Co., in a conference with a committee of dissatisfied employees, said last week that the receipts of the company had increased $350 a day since the dismissal of 75 or 100 dishonest conductors. The committee had demanded reinstatement of four men, but were shown records which, according to the newspaper report, led them to withdraw the demand.

The business men of Leavenworth, Kan., recently asked the Union Pacific to put an additional passenger train on its line running west from Leavenworth 100 miles. The management declined the request because the train would not pay its running expenses. The business men then offered to buy a motor car themselves and run it, paying for the use of the track. The proposition has not yet been acted on.

Henry, R. W. and John A. Goll, of Glasgow, Mo., have brought suit at Moberly, Mo., against the Chicago & Alton for damages aggregating $47,920. They allege that a tract of 735 acres of land owned by them was overflowed in 1908 and 1909, resulting in the drowning of their stock and destruction of the crops, and that the overflows were due to an embankment on the Missouri river built by the Chicago & Alton to protect its right of way.

The New York State Public Service Commission, Second District, reports that for the month of September the number of passenger trains run in the State was 62,092, of which 82 per cent. were on time at division terminals. The average delay of each late train was 24.3 minutes. The average delay for each train run was 4.2 minutes. The Dunkirk, Allegany Valley & Pittsburgh had 96 per cent. of its trains on time and the New York, Susquehanna & Western 97 per cent.

The Santa Fe announces that on January 1 it will put on a new train between Chicago and Los Angeles and San Francisco. The run of the train, which now leaves Chicago at 9:30 a. m. for Kansas City, will be extended from Kansas City across the continent. It will run at the same speed as the "Colorado Limited," covering the distance in 72 hours. A new train will be put on between Chicago and Kansas City to take local passengers, and new trains will also be put on between Kansas City and Denver and between Kansas City and the Southwest.

The Grand Trunk Pacific, now open to Edmonton, about 800 miles west of Winnipeg, ran a special train for newspaper men over this distance last week in 23 hours, equal to nearly 35 miles an hour. It is said that the establishment of regular through passenger trains to Edmonton will be deferred until spring, because the line is not all fenced, and the Railway Commission of Canada will not consent to the running of trains at full speed until the fences shall have been put up.

Pennsylvania newspapers report that a considerable number of employees of the Pennsylvania Railroad have asked the general manager to allow employees to contribute to a pension fund. All employees are now eligible for pensions paid by the railway company, but the present proposition is made by those who wish, by their own contributions, to provide for larger pensions. Such a plan, if carried out, is expected to meet the wants of those who think it may be desirable to retire from the service at an earlier age than that provided under the present pension regulations.

The New Jersey State Board of Assessors has filed with the State Comptroller a schedule of the valuations of railway and canal property for 1909. The total assessment is $281,214,158, an increase of $8,934,168 over last year. The total tax levied is $5,088,345, an increase over 1908 of $426,813. The local taxing districts will receive $1,337,340 and the State $3,751,004. The aggregate assessed valuation of the larger railway systems operating in the state is as follows: Pennsylvania, $86,349,835; Central, $56,485,327; Delaware, Lackawanna and Western, $48,866,714; Lehigh Valley, $23,958,942; Erie, $23,585,746; Philadelphia & Reading, $11,408,240; New York, Susquehanna & Western, $7,655,664.

The State Railroad Commission of Indiana has issued a circular to the Interurban Railways of the state saying that complaints are made that trainmen on some of the lines are sometimes required to remain on duty more than 16 hours. The Indiana 16-hour law does not apply to interurban roads, but, inasmuch as Congress and the General Assembly of Indiana have enacted "human endurance laws," the commission thinks that the roads should not require or permit their trainmen to work more than a reasonable length of time. Therefore "the commission desires to impress upon you that trainmen and employees should not be required or allowed to remain on duty longer than 16 consecutive hours, or to go on duty without having had at least eight hours' rest." * * *

The United States Civil Service Commission will hold examinations November 23 and 24 to secure eligibles for the positions in the Bureau of Statistics and Accounts of the Interstate Commerce Commission. The Commission wants

men as follows: Five (5) for positions as examiners, salaries from $2,220 to $3,000; fifty (50) for examiners, salaries from $1,860 to $2,100; and fifty (50) for clerks, salaries $1,200 to $1,620. The special qualifications desired are those of general auditing, disbursements, freight, passenger and claims accounting of steam and electric railways and other common carriers, express service and steamship service. The age limit of candidates is from 21 to 48 years. The examination of candidates will be held in the state or territory in which they reside. Circulars may be obtained from the U. S. Civil Service Commission, Washington.

Dr. Ernest J. Berg, of Schenectady, N. Y., has been appointed professor of electrical engineering at the University of Illinois. Dr. Berg for the past 17 years has been associated with the General Electric Co. He was born in Sweden in 1871, was graduated from the Royal Polytechnical Institute, Stockholm, in mechanical engineering in 1892, and came to the United States in 1893. As a representative of the General Electric Co. he designed and supervised the installation of the first rotary transformers in the city of Chicago a dozen or more years ago. He has been an expert adviser, both at Schenectady and at Lynn, and has been sent to Europe many times. During the last three years he has given lectures at Union College, Schenectady, and he has received from that institution the honorary degree of Doctor of Science. Dr. Berg understands the English, German, French, Swedish, Norwegian and Danish languages and his contributions to scientific literature are numerous and of high value. The coming of Dr. Berg will not deprive Illinois of the services of Professor Brooks, who at the expiration of his present leave of absence will continue as a professor of the department.

Representatives of the various railway brotherhoods have been calling at the newspaper offices in Chicago to protest against the agitation that is being carried on for electrification of terminals and for the suppression of the smoke nuisance. The newspapers have been daily printing articles with pictures of smoking locomotives. The railway employees state that this publicity is doing a great hardship to them; that they are doing all in their power to keep smoke at a minimum, and believe that in consequence the amount of smoke caused by locomotives in Chicago is less in proportion to their number than in any other city where soft coal is burned. They state that the railways are trying, by the use of smoke-consuming devices and the enforcement of strict rules, to suppress the smoke nuisance, and that the result of the newspaper agitation has been that many employees have been laid off by their superior officers. This, they say, has been especially true on the Chicago & North Western, where the Brown system of discipline is not in effect and discipline is administered by suspension. The employees oppose electrification on the ground that it will increase the hazard of their employment and lead to reductions in wages.

Government Ownership in Texas.

A ruling of the department of justice of Texas discloses that the only railway in that state which can issue free passes without restriction is the Texas State Railroad. A state law prohibits, with the usual exceptions, the issuance of passes by railway companies. But, says the department of justice, the Texas State Railroad is owned by the State of Texas and the State of Texas is not a railway company. Therefore it may issue passes. Needless to say, the politicians have not been slow to take advantage of this situation. It is stated that there are at least 26 (annual) passes on the State Railroad, and that most of them are in the pockets of officers of the State of Texas. A writer in the Houston *Post* says, however, that if the facts about the operation of the state railway were fully known some of those who have passes might be less ready to use them. He says that the chief train despatcher is a convict by the name of Davis, who performs his duties from a cell in the penitentiary.

The Penitentiary Investigating Committee has made a report on this state-owned railway (running from Palestine to Rusk, thirty-three miles). It is said to be the plan of the Democratic political element, which advocated its construction to extend the line east and west a further distance of about 200 miles, and to ultimately have it reach all the way across the state.

These ambitious plans, however, will meet with opposition. The last Legislature authorized bonds to the amount of $200,000, to be issued to build the line to Palestine. These bonds were purchased by the permanent school fund of the State, and it is now claimed that there is very little prospect of that fund ever being reimbursed for the money which it paid for the bonds. The Investigating Committee is, so far, unable to find how much the road cost to build. The State Penitentiary authorities supervised the construction work. The road has very little traffic and is being operated at a loss, it is said. There are no towns and no industries on the line between its two terminals.

Bonuses for Omaha Street Railway Men.

The Omaha Street Railway Company has rewarded the men who stuck to their places during the recent strike. It has paid out $25,000 in bonuses to about 150 men. When these men received their pay for last month's work they were given a surprise by finding extra sums in their envelopes. All who reported for duty each day during the fifteen days of the strike and put in full time were given $150 beside the regular wages. All who reported for duty, but were not assigned to runs, were given bonuses of $5 per day each. The barn, track foremen and road officers who remained at their posts were paid bonuses of $200 each, and every man who went out on strike, returning prior to the time that the company determined that the labor trouble was over, was paid $5 per day from the time of returning, regardless of whether they worked or not.

A Shortage of $643,000.

Albert H. Harris, vice-president of the Cleveland, Cincinnati, Chicago & St. Louis, has given out the following statement:

"The amount of the defalcation of C. L. Warriner, local treasurer of this company at Cincinnati, has been ascertained to be $643,000. Warriner has turned over to the company property amounting to more than $100,000, and there will be received from the American Surety Co., on its bond, $50,000, leaving the net amount of the shortage something less than $500,000. Warriner has been arrested and is now held to await the action of the grand jury.

"The method he adopted was to cover his defalcation in the item of 'cash in transit.' At the end of each month there are considerable sums of money on their way to the local treasurer from station agents and others, which have not been received by him. It was by including in this item the moneys which he had in fact stolen that he was enabled to conceal his defalcation."

U. S. Forest Service Laboratory.

The government has completed preparations for the transfer of the United States Forest Service Products Laboratory to Madison, Wis., where it will be established in a $50,000, fireproof, brick laboratory being built by the University of Wisconsin. The equipment formerly in the Yale and the Purdue Timber Testing Laboratories will be transferred to the new laboratory, the one at Yale having been discontinued October 1. The office of Wood Utilization is also being transferred, its new headquarters to be in Chicago. The staff at Madison will carry on experimental research and co-operate with commercial plants by verifying experiments on a commercial scale and assisting in the application of valuable processes. The staff at Chicago will study the wood-using industries of the country and collect statistics of prices and movements of lumber.

Canadian Society of Civil Engineers.

At a meeting of the mechanical section on November 11, a paper by G. L. Guillet, M.Sc., on "The Use of Alocohol in an Internal Combustion Engine," was read by the author and illustrated by lantern slides.

Railway Signal Association Committees.

The executive committee of the Railway Signal Association has announced the principal subjects to be dealt with during the coming 12 months with the names of the members of the committees to which each subject is assigned. There is a new committee on electric signaling, the work of which is outlined in the following paragraphs; and following that we give the names of the members of this and the other committees.

ELECTRIC SIGNALING FOR ELECTRIC RAILWAYS.

Outline of Work.

(a) Establish the history of the first suitable installation.

(b) Describe systems of A.C. track circuits used with D.C. propulsion, stating propulsion voltages; to include all known practices in the United States or Canada.

(c) Same as b except A.C. track circuits used for single-phase A.C. propulsion, stating propulsion voltages.

(d) Same as b except D.C. track circuits or their equivalent use with D.C. propulsion.

(e) Describe systems of signals in use on above lines, briefly stating method of control and other points of interest in order to assist the student to formulate comparisons and conclusions.

(f) Invite similar information to be submitted by firms in Great Britain and on the continent.

(g) Historical sketch and all data procurable of jointless track circuits.

(h) Sketches of circuits in use with each class of installation.

(i) Steam roads equipped with A.C. track circuits in anticipation of being electrified.

(j) Steam roads supplied with A.C. track circuits, not anticipating electrification, showing both types of this kind of installation.

(k) Sketches of various track circuits referred to in outlines.

(l) It is suggested that a sub-committee be organized to gather data relating to the use of alternating currents in signal work on steam roads.

COMMITTEE.

C. C. Rosenberg, Chairman, Bethlehem, Pa.
C. H. Morrison, Vice-Chairman, N. Y., N. H. & H., New Haven, Conn.
J. V. Young, B. & M., Boston, Mass.
W. C. Smith, Boston Elevated, Charlestown, Mass.
J. M. Waldron, Interboro Rapid Transit, New York City.
W. N. Spangler, Penn. Tunnel & Term., New York City.
J. Heywood, Philadelphia Rapid Transit, Philadelphia, Pa.
E. B. Smith, N. Y. C. & H. R., New York City.
E. C. Grant, U. P., Omaha, Neb.
H. A. Logue, Cumberland Valley, Chambersburg, Pa.
Thos. B. Whitney, Jr., Hudson & Manhattan, New York City.
W. P. Allen, Penn., Philadelphia, Pa.

No. 1.—SIGNALING PRACTICE.

A. H. Rudd, Chairman, Penn., Philadelphia, Pa.
L. R. Clausen, Vice-Chairman, C., M. & St. P., Chicago, Ill.

C. C. Anthony,	J. C. Mock,
H. S. Balliet,	F. P. Patenall,
H. S. Cable,	J. A. Peabody,
C. A. Christofferson,	T. S. Stevens,
C. E. Denney,	H. H. Temple,
W. H. Elliott,	W. J. Eck.
A. S. Ingalls,	

No. 2.—MECHANICAL INTERLOCKING.

C. J. Kelloway, Chairman, Atlantic Coast Line, Wilmington, Del.
L. C. Hartley, Vice-Chairman, C. & E. I., Chicago, Ill.

F. H. Buchanan,	W. B. Morrison,
E. C. Graham,	F. C. Stewart,
L. Brown,	F. W. Pflegling,
T. A. Jones,	E. W. Kolb,
Chas. Stephens,	C. J. Cannon,
J. I. Vernon,	J. Diefenbach,
W. H. Fenly,	S. T. Brotzman.
C. H. Wiegand,	G. W. Chappell.

No. 3.—POWER INTERLOCKING.

B. H. Mann, Chairman, Mo. Pac., St. Louis, Mo.
W. F. Follett, Vice-Chairman, N. Y., N. H. & H., New Haven, Conn.

W. H. Arkenburg,	I. S. Raymer,
W. A. Bartley,	F. B. Wiegand,
W. N. Manuel,	R. C. Johnson,
E. A. Everett,	W. M. Post
W. H. Harland,	E. Winans,
J. A. Johnson,	C. F. Bacon.

No. 4.—AUTOMATIC BLOCK SIGNALING.

A. G. Shaver, Chairman, C., R. I. & P., Chicago, Ill.
W. H. Higgins, Vice-Chairman, C. R.R. or N. J., Elizabeth, N. J.

E. A. Allen,	C. P. Woodson,
F. H. Bromley,	A. H. Rice,
T. N. Charles,	E. W. Newcomb,
G. W. Daves,	W. H. Willis,
J. M. Fitzgerald,	R. L. Hartzell,
J. F. Gilmor,	A. R. Fugina,
F. E. Jacobs,	H. K. Ferguson,
Henry Lavarack,	J. C. Finch,
S. N. Wright,	H. J. Rhinehart.

No. 5.—MANUAL BLOCK SIGNALING.

S. P. Hull, Chairman, N. Y. C. & H. R., New York City.
H. F. Lomas, Vice-Chairman, I. C., Chicago, Ill.

J. A. Beoddy,	E. B. Pry,
H. J. Foale,	E. J. Relph,
W. F. Giles,	C. P. Clark.
G. W. Hulzizer,	J. Beaumont.
L. R. Mann,	F. J. Hemphill.

No. 6.—AUTOMATIC STOPS AND CAB SIGNALS.

R. C. Johnson, Chairman, N. Y. C. & H. R., New York City.
H. K. Lowry, Vice-Chairman, C., M. & St. P., Milwaukee Shops, Wis.

J. M. Waldron,	E. T. Amback,
James Heywood,	W. R. Hastings.

No. 7.—SUBJECTS AND DEFINITIONS.

C. C. Anthony, Chairman, Penn., Philadelphia, Pa.

J. C. Mock,	F. P. Patenall.

STANDARD DESIGNS.

J. C. Mock, Chairman, Detroit River Tunnel Co., Detroit, Mich.
J. A. Peabody, Vice-Chairman, C. & N. W., Chicago, Ill.

C. C. Anthony,	T. S. Stevens.
F. P. Patenall,	

WIRES AND CABLES.

W. H. Elliott, Chairman, N. Y. C. & H. R., Albany, N. Y.
E. L. Adams, Vice-Chairman, L. S. & M. S., Cleveland, Ohio.

W. L. Dryden,	V. I. Smart,
James Heywood,	M. E. Smith,
E. E. Mack,	J. E. Smith,
G. S. Pflasterer,	E. L. Watson,
J. D. Phillips,	L. L. Whitcomb,
D. W. Richards,	J. W. Young.

STORAGE BATTERY.

A. H. Yocum, Chairman, P. & R., Philadelphia, Pa.
S. Miskelly.

LIGHTNING ARRESTERS.

W. W. Slater, Chairman, So. Pac., San Francisco, Cal.
J. Fred Jacobs, Vice-Chairman, C. R.R. of N. J., Easton, Pa.

W. E. Boland,	A. H. McKeen,
E. M. Cutting,	P. J. Ost,
H. A. Goodridge,	J. W. McClelland,
C. F. Hastings,	W. J. McWain,
P. B. Hyde,	W. A. Peddle.

ON METHOD OF RECORDING SIGNAL FAILURES.

J. C. Young, Chairman, Union Pac., Omaha, Neb.
W. Morrison, Vice-Chairman, N. Y. C. & H. R., New York City.

D. H. Case,	G. H. Dryden,
Alexander Brown,	E. C. Hitchcock,
J. R. Decker,	H. W. Lewis.

PROMOTION OF SIGNALING EDUCATION.

W. J. Eck, Chairman, Southern, Washington, D. C.
H. K. Ferguson, Vice-Chairman, A., T. & S. F., Atchison, Kan.

R. E. Trout,	F. E. Bender,
W. F. Johns,	H. C. Williams,
W. B. Weatherbee,	Caleb Drake.

M. C. B. and M. M. Conventions.

The executive committees of the Master Car Builders', American Railway Master Mechanics' and Railway Supply Manufacturers' associations met at the Hotel Belmont, New York, November 10, and decided to hold next year's conventions at Atlantic City, N. J. The sessions of the Master Car Builders' Association will begin Wednesday, June 15, and last three days; the American Railway Master Mechanics' Association will meet Monday, June 20, and adjourn at noon Wednesday, June 22. The headquarters of all three associations will be at the Marloborough-Blenheim Hotel. The meetings and the exhibition will be held on Young's Million Dollar Pier.

Chicago Engineers' Club.

F. A. Delano, president of the Wabash, addressed the Chicago Engineers' Club at noon on November 9 on Railroad Terminals. It is proposed to have addresses given before the club during the coming winter on the following subjects: (1) Deep Waterways; (2) Harbors and Waterways; (3) Building Regulations; (4) Pavements and Street Cleaning; (5) Public Regulation of the Use of Private Property; (6) Freight Handling; (7) Smoke Consumption; (8) City Beautiful.

Western Railway Club.

At the meeting on November 16 two papers were read, as follows: The Transportation of Dangerous Articles, by B. W. Dunn, and Electrification of Chicago Railways, by C. A. Seley.

Railway Business Association.

The committees of this association for the ensuing year are as follows:

CREDENTIALS.

George E. Molleson, chairman, Tyler Tube & Pipe Co.
F. S. Dinsmore, *Railroad Age Gazette.*
L. R. Pomeroy, Safety Car Heating & Lighting Co.
S. A. Crone, Buffalo Brake Beam Co.

FINANCE.

Otis H. Cutler, chairman, American Brake Shoe & Foundry Co.
C. H. Howard, Commonwealth Steel Co.
W. C. Dodd, National Lock Washer Co.
B. A. Hegeman, Jr., U. S. Metal & Manufacturing Co.
A. P. Storrs, Storrs Mica Co.
D. P. Lamoreaux, Beaver Dam Malleable Iron Co.
F. P. Huntley, Gould Coupler Co.

RESOLUTIONS.

W. H. Marshall, chairman, American Locomotive Co.
W. C. Arthurs, Mt. Vernon Car Co.
C. S. Hawley, Consolidated Car Heating Co.
D. S. Marfield, American Valve & Meter Co.
H. G. Prout, Union Switch & Signal Co.
E. G. Buckwell, Cleveland Twist Drill Co.
A. B. Johnson, Baldwin Locomotive Works.

NOMINATIONS.

W. E. Clow, chairman, Jas. B. Clow & Sons.
E. B. Leigh, Chicago Railway Equipment Co.
Stephen C. Mason, McConway & Torley Co.
W. H. Miner, W. H. Miner Co.
R. Ortmann, Ajax Forge Co.
W. B. Leach, Hunt-Spiller Mfg. Corp.
I. T. Hartz, Morden Frog & Crossing Works.
Henry H. Hawley, Railroad Supply Co.
H. M. Wilson, Barney & Smith Car Co.
S. G. Allen, Franklin Railway Supply Co.
Henry M. Brown, Brown Car Wheel Works.
James Rawle, J. G. Brill Co.

ON EXECUTIVE COMMITTEE REPORT.

R. F. Carr, chairman, Dearborn Drug & Chemical Works.
W. C. Kerr, Westinghouse, Church, Kerr & Co.
John E. Bradley, Osgood, Bradley & Sons.
E. L. Langworthy, Adams & Westlake Co.
G. C. Lucas, Cleveland Frog & Crossing Co.
Wm. Marshall, Anglo-American Varnish Co.
G. D. Terbell, American Brake Shoe & Foundry Co.

The treasurer's annual statement, for the year ending September 30, which was presented at the meeting, held in New York this week, is as follows:

Receipts.	
Fees and contributions	$46,250
Disbursements.	
Rent, furnishings, etc.	$3,319
Office expenses, printing, etc.	8,310
Salaries	14,151
Traveling and executive expenses	1,631
Chicago, Springfield and Albany demonstrations	2,249
Miscellaneous	1,457
Total expenses	$31,117
Cash on hand	15,133
	$46,250

Association of Railway Electrical Engineers.

About thirty members met informally at the Lakeside Restaurant, Adams and Clark streets, Chicago, on Wednesday night, November 3, for general discussion of live subjects. N. E. Lemmon, of the Pullman Company, was chairman, and it was decided to hold similar gatherings at the same place on the first Wednesday of each month.

American Section, International Commission on Railway and Steamship Refrigeration.

The following have been appointed as the members of the American section of the International Commission on Railway and Steamship Refrigeration: E. O. McCormick, assistant traffic director Union and Southern Pacific, chairman; W. B. Biddle, third vice-president Rock Island-Frisco System; J. M. Culp, vice-president Southern Railway; Carl Howe, manager New York Central Fast Freight Lines, Buffalo, N. Y.; G. Harold Powell, pomologist, in charge of fruit transportation and storage, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C., and E. F. McPike, refrigerator service agent, Illinois Central, secretary.

American Railway Association.

The fall session will be held at the Auditorium Hotel, Chicago, on Wednesday, November 17, at 11 a. m. Reports will be presented by the following committees: Executive Committee; Committee on Transportation; Committee on Maintenance; Committee on Relations between Railways; Committee on the Safe Transportation of Explosives and Other Dangerous Articles; Committee on Electrical Working and Committee on Nominations.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

Air Brake Association.—F. M. Nellis, 53 State St., Boston, Mass.; May 10-13; Indianapolis.
American Association of Demurrage Officers.—A. G. Thomason, Scranton, Pa. June, 1910; Niagara Falls, Ont.
American Assoc. of Local Freight Agents' Ass'ns.—G. W. Dennison, Penna. Co., Toledo, Ohio.
American Institute of Electrical Engineers.—R. W. Pope, 33 West 39th St., New York; second Friday in month; New York.
American Railway Association.—W. F. Allen, 24 Park Place, New York; Nov. 17; Chicago.
American Railway Bridge and Building Association.—S. F. Patterson, B. & M., Concord, N. H.
American Railway Engineering and Maint. of Way Assoc.—E. H. Fritch, Monadnock Bldg., Chicago, March 14-17, 1910; Chicago.
American Railway Industrial Association.—G. L. Stewart, St. L. S. W. Ry., St. Louis; second Tuesday, May; Memphis, Tenn.
American Railway Master Mechanics' Association.—J. W. Taylor, Old Colony Building, Chicago.
American Society for Testing Materials.—Prof. Edgar Marburg, Univ. of Pa., Philadelphia.
American Society of Civil Engineers.—C. W. Hunt, 220 W. 57th St., N. Y.; 1st and 3d Wed., except July and August; New York.
American Society of Mechanical Engineers.—Calvin W. Rice, 29 W. 39th St., N. Y.; 2d Tues. in month; annual, Dec. 7-10; New York.
American Street and Interurban Railway Association.—B. V. Swenson, 29 W. 39th St., New York.
Association of Am. Ry. Accounting Officers.—C. G. Phillips, 143 Dearborn St., Chicago; June 29, 1910; Colorado Springs.
Association of Railway Claim Agents.—E. H. Hemus, A., T. & S. F. Topeka, Kan.; May; Nashville, Tenn.
Association of Railway Telegraph Superintendents.—P. W. Drew, Wisconsin Central Ry., Chicago. May 16-20, 1910; Los Angeles.
Association of Transportation and Car Accounting Officers.—G. P. Conard, 24 Park Place, N. Y. Dec. 14-15; Chattanooga.
Canadian Railway Club. James Powell, Grand Trunk Ry., Montreal, Que.; 1st Tues. in month, except June, July and Aug.; Montreal.
Canadian Society of Civil Engineers.—Clement H. McLeod, Montreal, Que.; irregular, usually weekly; Montreal.
Central Railway Club.—H. D. Vought, 95 Liberty St., New York; 2d Friday in January, March, May, Sept. and Nov.; Buffalo.
Freight Claim Association.—Warren P. Taylor, Rich., Fred. & Pot. R. R. Richmond, Va. June 15, 1910, California.
International Master Boiler Makers' Association.—Harry D. Vought, 95 Liberty St., New York.
International Railway Fuel Association.—D. B. Sebastian, La Salle St. Station, Chicago; May; Chicago.
International Railway General Foremen's Association.—L. H. Bryan, D. & I. R. Ry., Two Harbors, Minn.; May; Cincinnati.
Iowa Railway Club.—W. B. Harrison, Union Station, Des Moines, Ia.; 2d Friday in month, except July and August; Des Moines.
Master Car Builders' Association.—J. W. Taylor, Old Colony Bldg., Chicago.
New England Railroad Club.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tues. in month, ex. June, July, Aug. and Sept.; Boston.
New York Railroad Club.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August; New York.
North-West Railway Club.—T. W. Flanagan, Soo Line, Minn.; 1st Tues. after 2d Mon., ex. June, July, August; St. Paul and Minn.
Railway Club of Pittsburgh.—J. D. Conway, Pittsburgh, Pa.; 4th Friday in month, except June, July and August; Pittsburgh.
Railway Signal Association.—C. C. Rosenberg, 12 North Linden St., Bethlehem, Pa.
Railway Storekeepers' Association.—J. P. Murphy, Box C, Collinwood, Ohio; May 16-18; St. Louis.
Roadmasters' and Maintenance of Way Association.—Walter E. Emery, P. & P. U. Ry., Peoria, Ill.
St. Louis Railway Club.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug.; St. Louis.
Society of Railway Financial Officers.—C. Norquist, Chicago.
Southern Association of Car Service Officers.—J. H. O'Donnell, Bogalusa, La.
Southern and Southwestern Ry. Club.—A. J. Merrill, Prudential Bldg., Atlanta; 3d Thurs., Jan., April, Aug. and Nov.; Atlanta.
Traveling Engineers' Association.—W. O. Thompson, N. Y. C. & H. R. R. R., East Buffalo, N. Y.
Western Canada Railway Club.—W. H. Rosevear, 199 Chestnut St., Winnipeg; 2d Mon., ex. June, July and Aug.; Winnipeg.
Western Railway Club.—J. W. Taylor, Old Colony Bldg., Chicago; 3d Tuesday each month, except June, July and August; Chicago.
Western Society of Engineers.—J. H. Warder, Monadnock Bldg., Chicago; 1st Wednesday, except July and August; Chicago.

Traffic News.

The Chicago, Milwaukee & Puget Sound has filed a petition with the Washington State Railway Commission asking it to require the Great Northern to establish physical connection and interchange of cars with the complainant at Seattle.

It is announced that after November 24 the Chicago, Milwaukee & St. Paul will no longer make through freight rates on Oriental traffic. It will follow the policy of other transcontinental lines in exacting the same revenue on traffic moving to the Orient that is charged on traffic for Pacific coast points.

Montreal, which has been receiving a large share of the grain which comes from the West and is bound for Europe, is now receiving far less, and it is said that the grain is going by way of Boston because at this time of the year marine insurance is considerably cheaper on vessels sailing from Boston.

In one month this fall, during the sale of low-rate tickets for home seekers, the Oregon Railroad & Navigation Company carried 7,164 passengers of that class into Oregon and Washington. Last year the home seekers' tickets were sold for two months, and in that time the number of passengers carried by this road into the states named was 8,477.

The Morgan and Mallory steamship lines announce increases on freight rates from New York to Texas points November 15 on canned goods, from 12 cents to 15 cents per 100 lbs.; agricultural implements, from 25 to 30 cents; machinery, from 25 to 30 cents; bagging, from 12 to 15 cents; beans and peas, from 15 to 17 cents; baking powder, from 20 to 33 cents.

Adrian Gips, general agent of the Holland-America steamship line, was arrested in New York City last week and held in $10,000 bail on a charge of receiving from the Central Vermont, the Grand Trunk and the Wabash illegal rebates on westbound freight. The investigation of the shipping arrangements on which this indictment was based was made by the federal grand jury in September.

The elevators at Fort William and Port Arthur now contain about eight million bushels of wheat and, by reason of good crops and the opening of a considerable section of the Grand Trunk Pacific, the movement of grain to Lake Superior is very heavy; and it is expected that ten million bushels will have to be sent out from the ports named in the first week of December. The shippers are anxious lest the supply of vessels may be inadequate.

The Chicago, Milwaukee & St. Paul last week took four carloads of silk from Tacoma to Chicago in a trifle less than 92 hours; and the cars were delivered to the Pennsylvania Lines within 11 minutes and reached Jersey City at 8 p.m., November 5, or in 118 hours from Tacoma. The distance from Tacoma to Chicago is 2,235 miles, making the rate of speed 24.3 miles an hour. From Chicago to Jersey City, 905 miles, the rate was about 36 miles an hour, and for the distance through 3,140 miles, the average rate of speed was about 26.8 miles an hour.

It is announced that the Grand Trunk Pacific will build a fleet of large steamships for use on the Pacific ocean when its railway line shall have been finished to Prince Rupert. It is given out at Toronto that the Canadian Northern is to establish a steamship company to build vessels to connect with the road, both on the Atlantic and the Pacific. The time when this road will reach the Pacific is somewhat distant, but the officers of the company say that the government of British Columbia has agreed to grant them all desired concessions.

President Livingstone, of the Lake Carriers' Association, in an interview favors an advance in the marine rate on ore from 65 to 75 cents per ton. The rate was reduced last year from 75 cents. Mr. Livingstone says that this was a mistake. The ore shippers did not ask for it. It was due to the anxiety of a few vessel-owners to secure tonnage. They lost sight of the fact that the reduction in price would not create a single additional ton of freight. Operating expenses and fixed charges could not be correspondingly reduced, and the only effect was to reduce the earnings and profits of the boat lines. Mr. Livingstone says that now that the iron and steel trade is booming prices are advancing and all classes of business are prosperous there is no reason why ore rates should not be advanced.

Next week the Pennsylvania Company, co-operating with the Pennsylvania State College of Agriculture, will run a Farmers' Special Instruction train over its Erie & Pittsburgh division, taking two days. The Pennsylvania System in the past three years has run a half dozen such "farmers' specials" in Pennsylvania and New Jersey, and the enthusiastic support accorded these enterprises is what leads to their repetition. Stops will be made at 17 stations on the Erie & Pittsburgh division. Two coaches will be used as audience rooms and two lectures will be delivered in each car during a 45-minute stop. The subjects will be Soil Fertility, Meadows and Pastures, Use of Lime, Corn, Market Gardening and Dairying.

The transcontinental roads have announced an advance of 15 cents per 100 lbs. in the rate on lemons from California points to eastern points in the United States and Canada, effective December 6. This follows a recent similar advance from California to the Dakotas and Minnesota. The rates on lemons were originally the same as on oranges, but were reduced several years ago to promote the development of the lemon industry and to enable the growers to compete in eastern markets with lemons from Sicily. The import tariff on the fruit was increased by the Payne-Aldrich tariff law from 1 cent to 1½ cents per pound. Whether or not this had anything to do with the matter, it at least made it practicable to restore the rate to its old basis.

O. B. Colquitt, a member of the Texas Railroad Commission, has written a letter to merchants at San Augustine, Tex., indicating that the Texas commission proposes to resist the efforts that business men of Shreveport, La., are making to get from the Interstate Commerce Commission reductions on interstate rates from Shreveport into eastern Texas that will enable them to compete more successfully with Texas jobbers. Replying to a letter of the merchants of San Augustine Mr. Colquitt said: "They will fail because the Interstate Commerce Commission cannot make the Railroad Commission of Texas do anything. We propose to protect the people of East Texas to the very best of our ability. Shreveport now has very greatly the advantage in interstate rates on all shipments coming into Shreveport for further distribution."

Crop Conditions.

The crop reporting board of the United States department of agriculture estimates the condition of the crops as follows, all figures for 1909 being preliminary:

The preliminary estimate of the average yield per acre of corn is 25.4 bushels, against 26.2 bushels as finally estimated in 1908, 25.9 in 1907, and 25.8 the average of the past 10 years. The indicated total production is 2,767,316,000 bushels, against 2,668,651,000 as finally estimated in 1908. The quality is 84.2 per cent. against 86.9 last year. Comparisons for important corn states follow:

States.	Yield per acre, bushels.			Total production (000 omitted), bushels.		Quality, per cent.	
	1909.	1908.	10-year av'ge.	1909.	1908.	1909.	1908.
Illinois	35.9	31.6	34.5	366,395	298,620	89	90
Iowa	31.5	31.7	32.2	294,210	287,456	87	87
Nebraska	24.8	27.0	27.7	196,565	205,767	86	88
Missouri	26.4	27.0	28.6	215,028	203,634	79	80
Texas	14.2	25.7	19.3	117,107	201,848	66	87
Kansas	19.9	22.0	23.1	155,419	156,200	75	83
Indiana	40.0	30.3	34.5	196,520	137,835	91	90
Ohio	39.5	38.5	35.3	151,443	136,675	89	93
Oklahoma	17.0	24.8	24.8	100,555	122,239	72	81
Kentucky	29.0	25.2	25.9	103,472	84,823	86	84
Tennessee	22.0	24.8	22.8	75,174	83,080	84	88
Michigan	35.4	31.8	31.7	69,950	60,420	85	90
South Dakota	31.7	29.7	26.9	65,270	57,677	92	91
Pennsylvania	32.0	39.5	34.4	48,256	57,275	77	91
Arkansas	18.0	20.2	18.9	52,002	54,035	75	82
Georgia	13.9	12.5	11.1	62,161	53,750	91	89
North Carolina	16.8	18.0	14.4	48,686	50,166	87	86
Virginia	23.2	26.0	22.4	47,328	50,050	85	89
Wisconsin	33.0	33.7	33.4	50,589	49,674	84	84
Minnesota	34.8	29.0	29.2	58,464	46,835	92	83
Mississippi	14.5	17.3	15.4	41,499	45,845	76	84
Alabama	13.5	14.7	13.3	43,646	44,835	81	88
Louisiana	23.0	19.8	17.0	51,198	33,898	90	85
South Carolina	16.7	14.1	10.8	37,041	29,229	88	89
All others	29.2	30.3	26.5	119,338	116,785	80	91
United States	25.4	26.2	25.8	2,767,316	2,668,651	84.2	86.9

About 3.0 per cent. (79,779,000 bushels) of the corn crop

of 1908 is estimated to have been in farmers' hands on November 1 against 2.7 per cent. (71,124,000 bushels) of the 1907 crop in farmers' hands on November 1, 1908, and 4.1 per cent., the average of similar estimates for the past 10 years.

The average weight per measured bushel of this year's wheat crop is 58.0 lbs. against 58.3 lbs. in 1908, and 57.4 lbs., the 10-year average.

The average weight per measured bushel of this year's oat crop is 32.7 lbs. against 29.8 lbs. in 1908, and 30.9 lbs., the 10-year average.

The preliminary estimate of the average yield per acre of buckwheat is 20.8 bushels against 19.8 bushels, as finally estimated in 1908, 17.9 in 1907, and 18.0, the average for the past 10 years. A total production of 16,692,000 bushels is thus indicated against 15,874,000 bushels in 1908. The quality is 91.1 per cent. against 90.7 last year, and 90.4, the 10-year average.

The preliminary estimate of the average yield per acre of potatoes is 106.5 bushels against 85.7 bushels as finally estimated in 1908, 95.4 in 1907, and 89.6, the 10-year average. A total production of 367,473,000 bushels is thus indicated against 278,985,000 in 1908. The quality is 88.9 per cent. against 87.6 last year and 87.9 the 10-year average.

The preliminary estimate of the average yield per acre of tobacco is 807.7 lbs. against 820.2 lbs. as finally estimated in 1908, 850.5 lbs. in 1907, and a 10-year average of 805.1 lbs. A total production of 895,184,935 lbs. is thus indicated, against 718,061,000 lbs. as finally estimated in 1908. The quality is 86.7 per cent. against 87.9 in 1908, 90.0 in 1907, and 85.9, the 10-year average.

Car Surpluses and Shortages.

Arthur Hale, chairman of the committee on relations between railways of the American Railway Association, in presenting statistical bulletin No. 57-A, giving a summary of car shows a decrease of only 5,081 cars, leaving 30,896, of which about one-half are box cars. This surplus is principally in the Northwest while the more severe shortages are in the East, the Middle West and the Southeast. The encouraging feature in the showing is that although the surplus is reduced, the reduction is the smallest we have had since July. This surplus which is left is quite considerable, while for the same period in 1907 the surplus was absolutely wiped out. On the other hand, the increase in the shortage, which is especially marked in the case of coal cars, is larger than we have had for two years."

Express Rates in Illinois.

The Illinois Railroad Commission took testimony in Chicago last week regarding the reasonableness of the rates charged by express companies in that state. John W. Hughes, of Marshall, Field & Co., testified that in 1908 certain rates paid by Chicago stores to the express companies in the Chicago district for short distances were raised from 30 cents per 100 lbs. to 40 cents and shortly afterward to 50 cents. In consequence this company ceased patronizing the express companies and began using automobile trucks for handling goods to points as far out as Evanston.

C. B. Gregory, of the Rockford Manufacturers' and Shippers' Association, submitted the following table, which he said showed the express rates for the distances mentioned in the states mentioned:

	Rate in		
	Illinois.	Missouri.	Texas.
36 miles	60	45	45
53 "	60	50	70
96 "	100	75	70
131 "	125	100	90
210 "	125	135	140
262 "	125	150	160

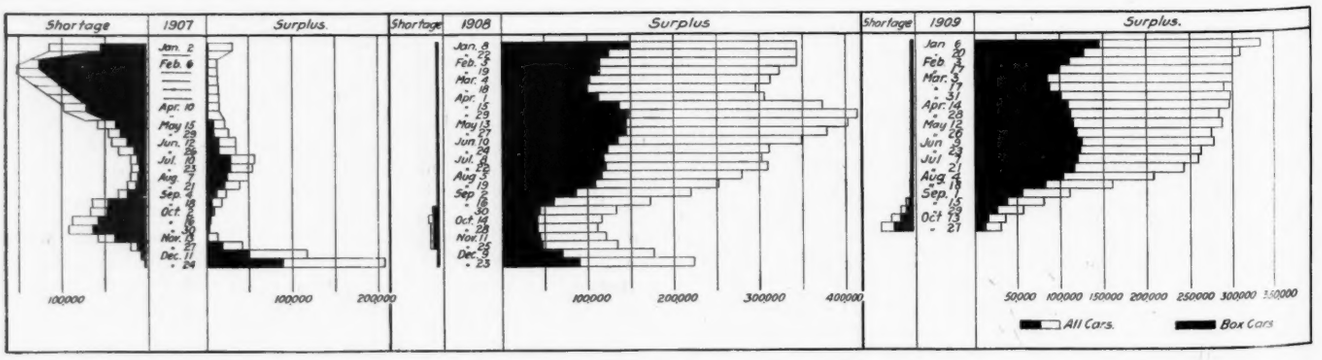
T. B. Harrison, counsel for the express companies, admitted that the rates in the Chicago district have been increased, but

Car Surpluses and Shortages, June 24, 1908, to October 27, 1909, Inclusive.

	Number of roads.	Surpluses. Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.	Shortages Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.
October 27, 1909	174	13,029	3,090	5,287	9,490	30,896	23,138	1,412	8,743	3,343	36,636
October 13, 1909	175	14,991	3.735	5,530	11,721	35,977	14,693	1,367	5,100	2,271	23,431
September 29, 1909	174	22,330	3,821	11,239	15,998	53,388	8,184	655	4,392	1,351	14,582
August 18, 1909	169	82,505	5,953	42,158	28,808	159,424	556	277	1,076	100	2,009
July 21, 1909	165	116,221	9,971	78,675	38,487	243,354	106	169	31	33	339
June 23, 1909	166	121,441	12,099	89,292	40,112	262,944	211	190	193	233	827
May 26, 1909	158	118,077	14,940	97,006	43,687	273,710	83	99	1,011	47	1,240
April 28, 1909	161	107,665	16,487	110,538	47,638	282,328	144	106	74	173	497
March 31, 1909	158	101,344	20,428	128,546	46,282	296,600	158	98	116	27	399
February 17, 1909	159	98,512	23,924	135,208	43,797	301,441	266	97	11	96	470
January 20, 1909	162	127,204	26,723	116,680	41,057	311,664	163	21	139	35	358
December 23, 1908	158	87,350	16,247	79,595	38,885	222,077	471	42	289	217	1,019
November 25, 1908	160	45,194	12,157	43,854	31,624	132,829	7,923	178	900	209	9,210
October 28, 1908	158	39,383	10,185	31,541	29,803	110,912	8,175	167	2,261	236	10,839
September 30, 1908	160	42,593	10,365	49,795	31,039	133,792	7,313	450	224	127	8,114
August 19, 1908	160	106,367	13,494	92,500	40,642	253,003	465	90	105	194	854
July 22, 1908	166	120,580	14,401	125,739	47,960	308,680	115	37	330	27	509
June 24, 1908	163	123,112	18,042	130,149	41,995	313,298	266	34	120	31	451

shortages and surpluses by groups from June 24, 1908, to October 27, 1909, says:

"There has been an increase of 56 per cent. in the shortages reported, which now total 36,636. Of this number, 23,238 are box and 8,743 coal and gondola cars. The surplus, however, he said that they were unreasonably low before and that they are reasonable now. J. A. Hayden, traffic manager of Gage Brothers, wholesale milliners, lightened the proceedings slightly in his testimony regarding the action of the express companies in doubling the rates on women's hats. O. F. Berry,



Car Surpluses and Shortages in 1907, 1908, 1909.

chairman of the commission, asked him if he meant to contend that rates should be based on weight alone and if a box 4 ft. in diameter containing only one hat should be carried purely on the basis of weight. Mr. Hayden replied that this was his contention. "Hats," he said, "are continually increasing in size and we do not get any proportionate advance in price. I do not see why we should pay a higher rate than is paid on iron or any other commodity which occupies less space but weighs far more." Mr. Berry did not ask him the seemingly pertinent question as to whether the express companies or the wholesale milliners are responsible for the increasing dimensions of women's hats.

H. C. Barlow, traffic director of the Chicago Association of Commerce, filed statements to show that the various express companies are grossly over-capitalized and nevertheless are earning enormous dividends on their capitalizations. He submitted a table comparing rates from 150 points in Illinois with rates for the same distances in other states where the rates have been fixed by commissions. These tend to show that the rates in Illinois are 28 to 35 per cent. higher than the rates in states having less population and smaller density of traffic. He attacked the graduated scale under which the rate is the same for 1 oz. as for 31 lbs. and the same for 32 lbs. as for 100 lbs. The commission, he said, should prescribe different classifications for different kinds of packages so that they will not all take the merchandise rate. Among his reasons for the contention that express rates in Illinois are unreasonable he referred to the contracts between the railways and the express companies by which, if the express companies want to get 5 cents more revenue they have to raise the rate 10 cents in order to give the railways half.

Tonnage Through the Soo Canals.

The following table is a summary of the statistical report of the U. S. Army Corps of Engineers, of lake commerce through canals at Sault Ste. Marie for the month of October, 1909.

	U. S. Canal.	Canadian Canal.	Total.
Vessel passages, number....	1,968	995	2,963
Registered tonnage, net....	4,644,258	2,955,190	7,599,448
Freight—			
Eastbound, net tons.....	3,457,147	4,192,308	7,649,455
Westbound, net tons.....	1,162,846	314,939	1,477,785
Total freight, net tons.....	4,619,993	4,507,247	9,127,240

COURT NEWS.

In the federal court at Pittsburgh, Pa., November 3, a verdict was rendered against the Pennsylvania Railroad for violating the 28-hour law regarding the resting of live stock, and one of $100 against the same company for violation of the Safety Appliance law in using cars with defective couplings.

The prosecuting attorney of Valley county, Nebraska, has dismissed three suits which he brought for alleged violations of the Nebraska anti-pass law because he has discovered that the law now provides that to secure a conviction it must be proved that the accused both accepted and used a pass. The law, prior to its amendment at the last session of the legislature, prohibited the acceptance or use of a pass. It is said that the change from "or" to "and" is a joker which was inserted in the law when it was amended last year for the purpose of liberalizing its provisions regarding the issuance of passes to railway employees.

Judge William C. Hook, of the federal court, heard arguments at Guthrie, Okla., on November 4 on the petition of the railways in that state for a temporary injunction to re- Oklahoma cases that the Virginia rates were not in effect, homa from enforcing the 2-cent fare law and 11 orders reducing freight rates which have been issued by the State Corporation Commission. Counsel for the state entered a plea in abatement on the ground that the rate orders are now properly on appeal before the state supreme court, and that the Oklahoma constitution affords a proper remedy to an aggrieved carrier from the state 2-cent passenger fare by permitting it, on proper showing to the Corporation Commission, to be exempted from this provision. He cited the decision of the supreme court of the United States, which held that the railways of Virginia should have exhausted their remedies in the courts of that state before appealing to the federal court. Frank Hagerman, chief counsel for the railways, made the distinction between the Virginia and Oklahoma cases that the Virginia rates were not in effect while those in Oklahoma are in effect and are alleged to be confiscatory. He said that on the basis of the actual value of the railways in Oklahoma the 2-cent passenger fare and the rates fixed by the Corporation Commission would not yield a revenue of 2 per cent.

Judge Van Fleet, of the United States circuit court at San Francisco on November 5 held that the Atchison, Topeka & Santa Fe must pay William Uhlmann & Company $3,455 on a rebating contract. Uhlmann charges that an agreement was made in 1905 that he should pay the full freight rates on baled hops from interior counties to San Francisco, and that a portion of the charge would be rebated, the aggregate amount being the sum mentioned. The railway refused to pay the rebates because it feared prosecution under the interstate commerce law. Judge Van Fleet held that the possibility of federal prosecution could not relieve the road of its obligation to keep its contract.

STATE COMMISSIONS.

The Texas Railway Commission has ordered the railways in that state to furnish detailed monthly reports of their traffic and earnings.

The Railroad Commission of Indiana has issued a circular to the Electric Interurban lines of the state calling for information with respect to the use of trolley guards at crossings of electric and steam lines; number of crossings now protected by trolley guards; brief description of guards; number of crossings not protected; opinion as to efficiency of guards; what kind is best, and approximate cost.

Owing to the shortage in the grain crop in Texas, Mr. Colquitt, of the State Railway Commission, has asked for reductions in interstate rates on grain into Texas. He says that the commission has been petitioned by the people of the state to establish emergency rates on corn and feed for stock. Such rates would be of little or no benefit, and, hence, the commission addresses the managers of railways which penetrate states and sections where large crops have been produced to see if they will not make substantial reductions in the rates from other states into Texas. "The railway commission is convinced," says Mr. Colquitt, "that such a course would be wise and beneficial not only to consumers in Texas but to the railway."

New York: Duty to Furnish Refrigerator Cars.

New York State Shippers' Protective Association, Inc., v. New York Central & Hudson River et al. Opinion by Commissioner Decker.

Under the Public Service Commissions Law carriers are held to strict compliance with the rules for safe carriage, including the provision of cars in all respects suitable for the transportation of freight of every kind and nature which they undertake to carry. It is the legal duty of carriers to furnish for the transportation of potatoes and other bulk produce during the cold months of the year cars which are best adapted for the protection of such produce from damage by frost. These carriers are discharging their legal obligation in that respect by the provision during the cold season of refrigerator and produce cars, which represent in their construction at the present time the most approved type of car known to transportation. The complaining shippers claim that the cost of necessary linings for refrigerator and produce cars to protect produce shipments from damage by frost should be borne by the carriers, but such lining is found by the commission to be for the protection of the shipment in transportation, and the increased cost of service must be paid for by an increased transportation rate. The present cost of the linings, amounting to from $9 to $14 or more per car, is ex-

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF SEPTEMBER, 1909. (See also issue Nov. 5.)

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses					Net operating revenues (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or dec.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance Way and structures.	Maintenance Of equipment.	Traffic.	Transportation.	General.	Total.				
Atlanta, Birmingham & Atlantic	641	$166,673	$39,924	$216,484	$25,670	$30,654	$12,833	$82,874	$8,118	$160,149	$56,335	.....	$8,000	$48,335	$8,020
Baltimore & Ohio	4,193*	6,021,997	1,373,780	7,767,836	990,821	1,250,744	147,392	2,289,837	125,458	4,804,252	2,963,584	—$42,109	182,584	2,738,891	574,756
Boston & Maine	2,243	2,118,466	1,594,288	3,983,948	582,040	424,808	46,931	1,692,392	84,372	2,830,543	1,153,405	2,606	175,073	980,938	130,609
Chesapeake & Ohio	1,933	2,172,574	463,037	2,732,274	295,804	556,166	44,420	659,135	43,659	1,599,184	1,133,090	3,760	67,500	1,069,350	205,194
Chicago & Eastern Illinois	965	770,606	172,500	990,667	93,682	177,218	23,509	304,504	30,748	629,661	361,006	—1,163	32,400	327,443	88,756
Chicago, Rock Island & Gulf	529	162,062	64,359	240,102	44,800	23,195	5,762	85,268	7,692	166,717	73,385	—272	6,261	66,852	35,794
Chicago, Rock Island & Pacific	7,414	3,431,376	1,920,081	5,668,446	977,775	652,523	118,076	1,840,564	132,917	3,721,855	1,946,591	—11,685	194,932	1,739,974	—15,655
Delaware & Hudson Co.	845	1,185,842	371,558	1,618,919	128,925	240,555	20,534	521,870	34,036	945,920	672,999	—118	35,000	637,881	—101,993
Delaware, Lackawanna & Western	931	2,067,319	704,861	2,940,504	304,720	400,653	53,257	758,079	55,924	1,572,633	1,367,871	27,062	151,600	1,243,333	85,971
Denver & Rio Grande	2,552	1,420,781	618,823	2,131,739	290,885	299,579	42,979	716,134	46,339	1,395,916	735,823	8,224	58,585	1,040,387	—65,592
Duluth & Iron Range	168	1,427,883	19,246	1,454,173	105,002	61,803	347	190,193	8,413	365,758	1,088,415	10,557	17,167	207,502	360,618
El Paso & Southwestern Co.	867	448,550	78,778	554,495	69,628	77,580	10,113	150,509	21,347	329,177	225,318	—649	28,179	288,870	16,636
Galveston, Harrisburg & San Antonio	1,338	928,533	188,662	928,533	108,069	128,066	19,823	325,305	27,799	609,062	319,471	—2,421	298,601	3,282,667	—67,617
Great Northern	6,976†	5,125,487	1,397,821	6,816,339	985,893	616,721	78,241	1,516,550	86,611	3,284,016	3,532,323	48,945	9,404	259,145	722,536
Houston & Texas Central	789	430,404	122,966	585,345	53,756	49,143	15,554	179,544	18,799	316,796	268,549	.....	202,774	926,004	38,644
Illinois Central	4,550	3,139,765	1,042,142	4,756,471	866,746	1,026,251	110,995	1,532,360	90,123	3,626,475	1,129,996	—1,217	79,999	837,330	132,977
Missouri, Kansas & Texas	3,072	1,731,505	620,864	2,475,819	340,310	358,124	46,020	741,588	67,172	1,553,214	922,605	—5,276	23,300	247,965	107,034
Mobile & Ohio	1,114	612,722	108,904	838,814	102,225	146,272	26,301	264,518	26,853	566,169	272,645	—1,379	20,500	212,992	—10,974
Nashville, Chattanooga & St. Louis	1,230	631,549	244,729	934,409	160,256	170,473	34,155	312,083	23,972	700,939	233,470	—378	17,500	155,842	—16,862
New York, Ontario & Western	546	519,743	163,805	713,929	137,668	117,796	11,445	255,105	15,856	537,870	176,059	—2,717	42,191	740,173	—67,384
Oregon R. R. & Nav. Co.	1,327‡	893,749	475,239	1,444,432	132,529	88,644	31,099	382,414	28,883	663,569	780,863	1,501	50,000	1,017,664	—32,372
Oregon Short Line	1,508§	1,148,557	513,403	1,757,049	163,029	135,201	21,491	345,045	28,540	693,306	1,063,743	3,921	47,574	470,210	265,658
Pere Marquette	2,330	970,340	398,188	1,472,407	206,242	182,954	32,388	506,722	28,097	956,403	516,004	1,780	5,142	24,749	83,680
St. Joseph & Grand Island	319	91,982	40,880	145,733	25,367	19,388	6,221	60,663	4,373	116,012	29,721	170	117,610	993,734	—39,983
St. Louis & San Francisco	4,992°	2,306,100	956,607	3,508,982	571,593	553,382	76,352	1,106,686	89,625	2,397,638	1,111,344	.....	289,662	51,585	127,224
St. Louis Southwestern	773	508,229	111,167	643,357	56,601	87,052	23,269	140,850	22,000	329,771	313,586	—529	23,395	46,585	51,585
St. Louis Southwestern of Texas	697	235,869	73,400	329,569	65,681	66,628	7,245	120,406	14,547	274,507	55,062	—143	8,333	153,657	24,351
San Pedro, Los Angeles & Salt Lake	1,105	349,184	264,448	655,492	118,356	96,974	30,951	208,573	15,994	470,828	184,664	—2,135	28,872	740,173	1,816
Southern Ry.	7,050	3,194,827	1,297,186	4,839,094	623,788	797,869	108,827	1,493,346	138,523	3,162,353	1,676,741	—6,313	157,990	1,512,438	—32,372
Southern Railway in Mississippi	280	40,642	25,314	72,425	19,702	5,374	1,854	31,823	3,671	62,424	10,001	.....	4,502	5,499	121,212
Southern Pacific Co.—Pacific System	6,047δ	4,827,799	2,757,333	8,119,092	894,738	974,522	95,204	1,975,099	201,991	4,141,354	3,977,738	—321	240,062	3,737,355	727,958
Texas & New Orleans	458	223,808	78,221	320,626	39,933	55,441	5,596	121,284	8,967	231,221	89,405	1,476	11,600	79,281	2,485
Trinity & Brazos Valley	455	161,885	19,273	184,194	26,917	38,509	5,021	81,470	9,890	161,807	22,387	.....	4,750	17,637	27,091
Union Pacific	3,323	3,310,904	1,046,448	4,738,237	506,846	384,164	104,411	1,009,960	83,340	2,088,721	2,649,516	3,600	125,175	2,527,941	52,978
Wabash	2,515	1,664,236	698,142	2,545,469	300,897	343,286	84,074	868,541	60,947	1,657,745	887,724	—1,039	70,058	816,626	108,066
Yazoo & Mississippi Valley	1,371	525,918	162,079	736,151	211,499	144,207	17,144	256,116	22,482	651,448	84,703	3,372	34,740	53,335	140,683

THREE MONTHS OF FISCAL YEAR 1910.

Atlanta, Birmingham & Atlantic	641	429,907	136,199	594,731	80,788	97,167	34,802	243,133	25,039	480,929	113,802	.....	24,000	89,802	—22,772
Baltimore & Ohio	4,193*	17,048,369	4,038,367	22,221,337	3,026,051	3,797,126	452,021	6,654,450	380,479	14,310,127	7,911,210	—147,803	542,617	7,220,790	940,643
Boston & Maine	2,243	6,152,399	4,694,377	11,658,848	1,554,313	1,236,823	131,063	4,499,167	241,040	7,662,406	3,996,442	37,907	490,133	3,544,216	687,036
Chesapeake & Ohio	1,933	6,056,785	1,420,600	7,784,876	924,726	1,443,303	131,821	1,927,459	135,900	4,563,209	3,221,667	668	202,500	3,019,835	513,045
Chicago & Eastern Illinois	965	2,154,773	505,544	2,813,877	268,482	449,869	65,536	891,946	95,868	1,771,701	1,042,176	—3,389	97,200	941,587	257,405
Chicago, Rock Island & Gulf	529	520,622	194,441	754,189	118,552	52,052	17,771	262,184	26,186	476,745	277,444	—772	18,783	257,889	156,803
Chicago, Rock Island & Pacific	7,414	9,955,332	5,516,009	16,405,340	2,696,592	1,944,284	355,010	5,420,489	404,553	10,820,928	5,584,412	—35,743	584,827	4,963,842	656,366
Delaware & Hudson Co.	845	3,576,910	1,111,241	4,867,835	400,691	692,560	73,701	1,610,061	107,754	2,884,767	1,983,068	3,048	105,000	1,881,116	—47,837
Delaware, Lackawanna & Western	931	6,371,116	2,087,781	8,995,927	986,173	1,183,580	162,907	2,244,834	167,432	4,744,926	4,251,001	74,412	349,300	3,976,113	715,255
Denver & Rio Grande	2,552	4,105,733	1,794,682	6,168,929	800,611	839,689	129,584	2,023,997	136,075	3,929,956	2,238,973	39,344	192,000	2,086,317	133,864
Duluth & Iron Range	168	4,119,824	59,426	4,204,335	294,866	184,023	964	544,793	25,475	1,050,121	3,154,214	23,853	168,431	3,009,637	1,002,110
El Paso & Southwestern Co.	867	1,415,311	251,268	1,743,579	221,542	231,853	31,767	470,848	68,702	1,024,712	718,867	—2,064	51,500	665,303	83,608
Galveston, Harrisburg & San Antonio	1,338	1,748,865	589,837	2,461,121	319,604	364,435	63,550	900,268	81,549	1,729,406	731,715	—10,029	84,537	637,149	—87,149
Great Northern	6,976†	12,463,824	4,368,184	17,689,190	3,122,408	1,818,080	226,516	4,064,872	255,930	9,487,806	8,201,384	170,869	760,212	7,612,041	2,480,470
Houston & Texas Central	789	1,053,951	385,574	1,531,914	169,187	149,447	49,051	527,990	56,559	952,234	579,680	.....	48,668	531,012	118,354
Illinois Central	4,550	9,058,143	3,162,105	13,880,799	2,560,741	3,432,304	305,233	4,535,845	290,495	11,124,618	2,756,180	—6,200	609,368	2,140,611	40,068
Missouri, Kansas & Texas	3,072	4,306,027	1,875,696	6,569,042	960,865	880,342	152,449	2,101,602	207,865	4,303,123	2,265,919	—8,198	240,099	2,017,621	336,303
Mobile & Ohio	1,114	1,762,865	342,267	2,444,237	290,168	404,810	80,226	812,612	88,892	1,676,709	767,528	—6,986	64,700	695,842	30,207
Nashville, Chattanooga & St. Louis	1,230	1,900,304	712,806	2,781,413	456,557	526,713	107,689	924,227	65,506	2,080,693	700,720	—1,624	61,500	637,596	13,245
New York, Ontario & Western	546	1,589,655	727,760	2,432,353	387,785	331,536	34,061	794,784	50,529	1,598,695	833,658	—6,180	47,500	779,978	—116,994
Oregon R. R. & Nav. Co.	1,327‡	2,339,704	1,408,897	3,968,630	376,930	267,622	96,828	1,042,978	92,112	1,876,470	2,092,160	15,523	126,572	1,981,111	87,411
Oregon Short Line	1,508§	3,328,861	1,648,880	5,266,565	621,051	392,531	65,460	969,843	87,314	2,136,199	3,130,366	16,191	150,000	2,996,557	642,672
Pere Marquette	2,330	2,497,889	1,243,067	4,040,437	569,562	535,600	105,942	1,456,467	83,397	2,750,968	1,289,469	173	143,585	1,146,057	230,015
St. Joseph & Grand Island	319	284,159	121,755	440,785	97,697	46,634	18,917	153,993	12,141	329,382	111,403	251	15,428	96,226	—61,286
St. Louis & San Francisco	4,992°	6,560,808	2,797,619	10,083,364	1,595,207	1,583,521	221,839	3,194,833	264,088	6,859,488	3,223,876	.....	324,510	2,899,366	461,431
St. Louis Southwestern	773	1,328,105	342,056	1,738,078	165,879	260,768	66,416	390,441	62,184	945,688	792,390	—2,354	61,908	728,128	145,156
St. Louis Southwestern of Texas	697	589,918	236,155	887,795	192,496	207,469	23,395	335,482	43,096	801,938	85,857	—731	25,000	60,126	87,948
San Pedro, Los Angeles & Salt Lake	1,105	1,095,476	895,156	2,118,782	324,445	292,324	84,178	628,723	47,789	1,377,459	741,323	—1,544	77,192	662,587	250,286
Southern Ry.	7,050	8,774,425	4,038,531	13,840,328	1,744,586	2,339,247	329,582	4,413,969	405,403	9,232,787	4,607,541	—3,488	473,857	4,130,195	358,113
Southern Railway in Mississippi	280	101,662	73,747	192,638	55,700	16,061	5,526	92,772	8,614	178,673	13,965	.....	13,507	458	.....
Southern Pacific Co.—Pacific System	6,047δ	13,935,179	8,726,466	24,167,775	2,511,874	3,041,862	336,389	5,836,730	591,211	12,318,066	11,849,708	74,718	720,188	11,204,238	2,237,006
Texas & New Orleans	458	628,765	244,525	925,526	129,544	142,749	18,212	333,568	28,355	652,428	273,098	6,269	34,800	244,567	26,827
Trinity & Brazos Valley	455	353,363	53,705	416,975	88,882	98,620	15,033	206,359	29,282	438,176	—21,201	.....	11,750	—32,951	33,930
Union Pacific	3,323	9,537,832	3,182,286	13,841,817	1,488,811	1,167,718	865,493	2,869,447	265,882	6,157,351	7,684,466	15,390	365,525	7,334,331	747,924
Wabash	2,515	4,754,409	2,123,891	7,408,002	903,189	989,396	237,810	2,558,160	186,934	4,875,489	2,532,513	—979	199,048	2,332,486	215,049
Yazoo & Mississippi Valley	1,371	1,441,139	491,546	2,070,146	650,596	471,104	48,317	742,074	72,557	1,984,648	85,498	10,578	104,220	—8,144	242,140

—Indicates Deficits, Losses and Decreases.

*Mileage operated September 30, 1908.....3,992.
† " " " " 30, 1908.....6,671.
‡ " " " " 30, 1908.....1,264.
§Mileage operated September 30, 1908.....1,456.
" " " " 30, 1908.....4,726.
δ " " " " 30, 1908.....5,582.

ceptionally high, and a conference between the carriers and shippers, with a view to ascertaining a cheaper but effective method of lining, is recommended. The large yearly traffic involved in the shipment of potatoes and other like produce constitutes notice to carriers that they should proceed without unreasonable delay to improve their refrigerator and produce cars.

Another branch of the case relates to the furnishing of inside guards whereby the loading and unloading of bulk produce may be accomplished. The produce shippers generally use bulkheads constructed across the car, each side of the car door, leaving an open space the width of the car door. On shipments of grain an inside grain door is used, and some of the carriers provide or allow for the grain door on produce shipments. The commission draws a distinction between what constitutes protection of the shipment itself to enable the carrier to carry safely, as in the case of lining the cars, and what constitutes the furnishing of a car suitable for loading, movement and unloading, as in the case of the inside guards. The duty of carriers under the statute to furnish suitable cars for transportation extends to the provision of cars equipped with a proper inside guard, whereby bulk shipments may be loaded and unloaded by shippers with reasonable facility. The antecedent duty of carriers to furnish suitable cars must be performed without regard to the effect on rates. The statutory duty of the carriers to furnish a suitable car is not intended, however, to reach precision in the way of exactly satisfying the particular demands of each kind of traffic for the maximum convenience of handling in the process of loading and unloading, and the carriers' duty to furnish suitable cars is discharged by the provision of cars for these bulk shipments which are supplied with inside or grain doors, with bulkheads or any device whereby shippers are able to load and unload with reasonable facility. In so holding, however, the commission says that the carrier's obligation to furnish a suitable car extends to the provision of such a car without any intervention whatsoever on the part of the shipper or contribution by the shipper in money, material or time. If instead of furnishing the car properly equipped with the inside guard the carrier leaves the shipper to supply the inside guard under a tariff provision that it will make the shipper a certain allowance in money for providing the device, the carrier can take that course lawfully only on the assumption that its convenience is promoted and that the shipper can furnish the necessary inside guard device more certainly or more promptly. In following such a course the carrier undertakes to discharge its legal obligation by a regulation instead of by actual performance. Such regulation may be modified, revised or superseded by the commission. The use of bulkheads for the inside guard is shown, as compared with the inside or grain door, to promote the convenience of shippers, reduce the liability of carriers for damage by frost during cold weather, because with the bulkheads the car and load may be heated by a portable stove after loading and before shipment, and the cost of the bulkheads is substantially the same as that of the inside or grain door.

The complaint is dismissed so far as relates to the provision by carriers of car linings for protection in transit of bulk shipments in refrigerator or produce cars. The carriers are required to furnish for potatoes and similar bulk shipments cars equipped with inside construction such as grain doors, bulkheads or other proper device, and if the carriers have shippers supply such device under a stated allowance not less than the full cost thereof, they are required to so provide in their tariffs, leaving shippers the option to supply bulkheads or grain doors.

An officer of the Prussian State Railways forbade his subordinates to attend meetings of the "Liberal Union," one of the political parties. The Liberal Union complained of this to the Minister of Public Work. The reply was that there was no opposition to the employees taking part in political associations which do not advocate policies hostile to the state, provided that they keep within the bounds required by their official positions. The officer who acted in this case did so from a mistaken sense of duty, and is required to withdraw his prohibition.

Railroad Officers.

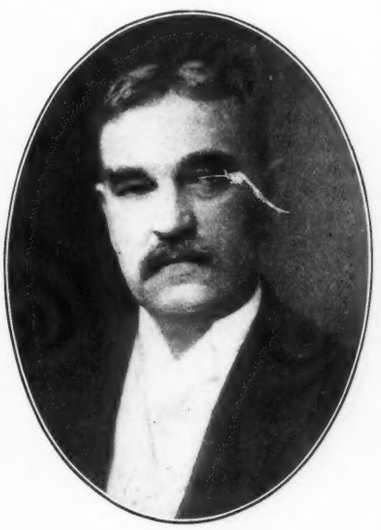
ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

G. A. Campbell has been appointed auditor of the Memphis, Paris & Gulf, with office at Nashville, Ark., succeeding J. M. McCarty.

H. M. De Gett has been appointed freight claim agent of the Elgin, Joliet & Eastern, with office at Chicago, succeeding F. L. Koontz, who retains his duties as assistant secretary and assistant treasurer.

David E. Thompson, United States Ambassador to Mexico, has been elected president of the Pan-American Railroad. Mr. Thompson, it is said, will soon retire from his diplomatic position and give most of his time to directing the affairs of the railway property. Mr. Thompson recently secured a controlling interest in the Pan-American, which is now in operation from Gamboa, Mex., on the Tehuantepec National, southeast to Mariscal, on the Mexican-Guatemala border, 284 miles, and it is planned to use the road as a link in the proposed all-rail route between the United States and South America. A line to bridge the gap between the southern terminus of this road and the Guatemala Central is now being built, and is expected to be finished in a few months. Mr. Thompson was born in Michigan in 1854 and was educated in the common schools. In 1872 he was a brakeman and by 1881 had been appointed superintendent. Since 1891 he has been manager of various industrial institutions and president of the Lincoln *Daily Star*, the Columbia Fire Insurance Co. and the Aurora, Neb., State Bank. He was appointed minister to Brazil in 1902, and in January, 1905, was made ambassador, remaining there until his appointment as ambassador to Mexico in September, 1905. His home address is at Lincoln, Neb., but at present he is living in Mexico City.



D. E. Thompson.

William H. Langley has been elected to the new position of vice-president of the Montana, Wyoming & Southern, with office at New York.

S. G. Latta has been elected president of the Dyersburg Northern, with office at Dyersburg, Tenn., succeeding R. M. Hall, resigned. J. C. Doyle has been elected secretary, succeeding W. H. Rupe, resigned.

The office of R. M. Huddleston, auditor of the Chicago, Indiana & Southern, has been transferred from Cleveland, Ohio, to Chicago. G. F. Tomlinson has been appointed auditor of disbursements, with office at Cleveland, Ohio, succeeding P. L. Fisher.

Roger A. Clark has been appointed auditor of the Central Railroad of Oregon, with office at Union, Ore., succeeding Wilbur Davis, in charge of all matters pertaining to the accounting department, and until further notice will have charge also of the general freight and passenger departments.

The following officers of the Stamford & Northwestern, a Texas road, which has been taken over by the Chicago, Burlington & Quincy, have been elected: George B. Harris, president, succeeding T. M. Buie, retired; D. B. Keeler, vice-president; S. M. Hudson, treasurer; J. Y. McCune, secretary.

N. B. Ackley, auditor of disbursements of the Michigan Central at Detroit, Mich., has been appointed assistant auditor. E. A. Wigren succeeds Mr. Ackley. J. M. Eedson has been appointed freight claim agent, succeeding Thomas Eedson, who continues as auditor of freight accounts, all with offices at Detroit, Mich.

Thomas J. Freeman, receiver and general manager of the International & Great Northern at Houston, Tex., has been elected second vice-president. A. R. Howard, treasurer at Palestine, Tex., has been elected secretary-treasurer and transfer agent, and H. B. Henson has been elected assistant secretary and assistant treasurer.

George T. Slade, whose election as third vice-president of the Northern Pacific has been announced in these columns, was born in New York City on July 11, 1871. He graduated from Yale University in 1893 and began railway work in that year with the Great Northern as clerk in the general roadmaster's office. From 1894 to 1899 he was consecutively assistant roadmaster, chief clerk to superintendent, assistant superintendent and superintendent of the Great Northern, and in the latter year was appointed general manager of the Erie & Wyoming Valley, now a part of the Erie, at Scranton, Pa. In 1901 he was made general superintendent of the Erie at Jersey City, N. J., where he remained two years. He was then for four years general superintendent of the Great Northern at St. Paul, Minn., and in 1907 he was appointed general manager of the Northern Pacific, from which position he was recently promoted.

Operating Officers.

A. E. Harvey, division superintendent of the Chicago Great Western at Clarion, Iowa, has resigned.

H. J. Slifer, general manager and assistant to president of the Panama Railroad at Colon, Panama, has resigned.

The office of W. A. Gore, superintendent of the Third division of the Seaboard Air Line, has been transferred from Monroe, N. C., to Atlanta, Ga.

C. A. Schomaker has been appointed trainmaster of the Chicago, Rock Island & Gulf, with office at Fort Worth, Tex., succeeding W. E. Farley, resigned.

J. D. Stack, superintendent of the Colorado & Southern at Trinidad, Colo., has been appointed an assistant superintendent of the Southern Pacific, with office at Sacramento, Cal.

W. J. Williams has been appointed superintendent of telegraph of the St. Louis Southwestern and the St. Louis Southwestern of Texas, with office at Tyler, Tex., succeeding G. C. Montaique.

K. M. Nicoles, assistant superintendent of the Lake Superior division of the Northern Pacific at Duluth, Minn., has been appointed superintendent, with office at Duluth, succeeding G. T. Ross, deceased.

The office of B. B. Baughman, superintendent of telegraph of the Wabash-Pittsburgh Terminal and the West Side Belt, has been abolished and these duties have been assumed by C. O. Dambach, trainmaster, with office at Pittsburgh, Pa.

H. C. Bixler, assistant trainmaster of the Pennsylvania at Pittsburgh, Pa., has been appointed trainmaster of the Pennsylvania Tunnel & Terminal Co., which will operate trains into the new terminal in the borough of Manhattan, New York.

J. H. Abrams, assistant superintendent of the Denver & Rio Grande at Pueblo, Colo., has been appointed a superintendent of the Colorado & Southern, with office at Trinidad, Colo., succeeding J. D. Stack, resigned to accept service elsewhere.

A. G. Nutting, supervisor of signals on the Iowa division of the Chicago, Rock Island & Pacific at Des Moines, Iowa, has been appointed lamp inspector of the Rock Island lines at Chicago, succeeding J. H. Benedict. R. L. Bryan succeeds Mr. Nutting.

V. H. Hagelbarger, trainmaster on the Nebraska division of the Chicago, Rock Island & Pacific at Fairbury, Neb., has been transferred to the Des Moines Valley division, with office at Des Moines, Iowa, succeeding E. F. Winslow, transferred to the Nebraska division.

C. S. Maharg, superintendent of the Canadian Pacific at Medicine Hat, Alb., has been transferred to Calgary, Alb., succeeding J. Niblock, superintendent of the Calgary division, retired. J. G. Taylor, superintendent at Moose Jaw, Sask., succeeds Mr. Maharg, with office at Medicine Hat, and W. J. Uren, superintendent at Brandon, Man., succeeds Mr. Taylor, with office at Moose Jaw.

E. H. Barrett, superintendent of the Chicago, Milwaukee & Puget Sound at Missoula, Mont., has been appointed assistant general superintendent, with office at Butte, Mont. He will have jurisdiction over the Trans-Mississippi, Mussel Shell, Rocky Mountain and Missoula divisions. C. H. Marshall, superintendent of the Columbia division, with office at Malden, Wash., succeeds Mr. Barrett, and A. H. Moll, trainmaster at Malden, succeeds Mr. Marshall.

W. H. Strachan, superintendent of the Minnesota & International at Brainerd, Minn., having resigned to become assistant superintendent of the Lake Superior division of the Northern Pacific at Duluth, Minn., that office is now abolished, and all reports previously made to him will be in future made to the general manager. George H. Warner, chief despatcher, has been promoted to the new position of trainmaster, and E. L. Orth has been promoted to chief despatcher.

J. D. Brennan, assistant superintendent of the Southern Pacific at Bakersfield, Cal., has been appointed assistant superintendent of the Western division, with office at Stockton, Cal. He will have jurisdiction over maintenance and operation of all lines of the Western division east and south of Tracy, including Tracy Yard. J. A. Metcalf, assistant division superintendent at Tucson, Ariz., succeeds Mr. Brennan, and G. L. Hickey, trainmaster at Yuma, Ariz., succeeds Mr. Metcalf. A. F. Bowles, assistant division superintendent at Sacramento, Cal., has been transferred to Los Angeles, Cal., and J. D. Stack, division superintendent of the Colorado & Southern at Trinidad, Colo., succeeds Mr. Bowles.

Traffic Officers.

F. G. Comstock has been appointed general agent of the Kanawha Despatch, with office at Peoria, Ill.

Owen Duggan has been appointed a traveling freight agent of the Texas & Pacific, with office at Louisville, Ky.

Paul Kirkpatrick, commercial agent of the Missouri, Kansas & Texas of Texas at Denison, Tex., has resigned.

F. W. Greene has been appointed traveling immigration agent of the Mobile & Ohio, with office at St. Louis, Mo.

H. C. Van Dorn has been appointed foreign freight agent of the Atchison, Topeka & Santa Fe, with office at Chicago.

M. H. Williams has been appointed general agent of the Northern Pacific, with office at Grays Harbor City, Wash.

C. L. Holloway has been appointed a traveling passenger agent of the Lake Erie & Western, with office at Lima, Ohio.

F. D. Southall has been appointed a traveling passenger agent of the Chicago & North Western, with office at Duluth, Minn.

J. A. Ellis has been appointed a general agent of the Chicago Great Western, with office at Omaha, Neb., succeeding E. R. Beem.

C. F. Walters has been appointed general freight and passenger agent of the Timpson & Northwestern, with office at Ragley, Tex.

J. T. O'Donnell has been appointed a commercial agent of the Kansas City, Mexico & Orient of Texas, with office at San Angelo, Tex.

J. F. Belger has been appointed a soliciting agent of the Nashville, Chattanooga & St. Louis, with office at Chicago, succeeding F. W. Shappert.

E. S. Smiley has been appointed a division freight agent of the Intercolonial Railway, with office at Halifax, N. S., succeeding A. T. Weldon.

E. L. Leedy has been appointed general immigration agent of the Great Northern, with office at St. Paul, Minn., and at Chicago, succeeding Max Bass, deceased.

W. M. Stephenson, general agent of the Chicago division of the Minneapolis, St. Paul & Sault Ste. Marie, at St. Paul, Minn., has resigned to go into the insurance business.

S. J. Ellison, assistant general passenger agent of the Great Northern at St. Paul, Minn., has been appointed general passenger agent, with office at St. Paul, succeeding A. L. Craig.

F. H. Harwood, coal traffic manager of the Illinois Central, with office at Chicago, has resigned to become president and general manager of the New Kentucky Coal Company of Chicago.

Charles E. Smith, general southern agent of the North and South Despatch at New Orleans, La., has been appointed general agent of the Mobile & Ohio, with office at Pittsburgh, Pa.

W. S. R. Cameron, formerly soliciting freight agent of the Northern Pacific at Winnipeg, Man., has been appointed a traveling agent of the Chicago & North Western, with office at Winnipeg.

R. L. Arnett, commercial agent of the Missouri Pacific at Fort Scott, Kan., has been transferred to Springfield, Mo., succeeding G. E. Jonte, resigned to go into other business. B. E. Sells succeeds Mr. Arnett.

R. L. Chandler, traveling freight agent of the Seaboard Air Line at Cordele, Ga., has been appointed a commercial agent, with office at Cordele, succeeding J. McF. Williams. E. B. Rock, Jr., succeeds Mr. Chandler.

S. M. Copp, claim agent of the New Orleans Great Northern at Bogalusa, La., has been appointed stock claim agent of the Yazoo & Mississippi Valley, with office at Memphis, Tenn., succeeding C. D. Hancock, transferred.

Owen Durham, traveling passenger agent of the Illinois Central at Memphis, Tenn., has been appointed Florida agent, with office at Jacksonville, Fla. Walter Byrne, city ticket agent at Memphis, succeeds Mr. Durham.

M. M. Ansley has been appointed general eastern agent of the Atlanta & West Point and the Western of Alabama, with office at New York. His former position of assistant general freight agent at Montgomery, Ala., has been abolished.

B. A. Clements, chief clerk to the vice-president of the Illinois Central, has been appointed general agent of the Illinois Central, the Indianapolis Southern and the Yazoo & Mississippi Valley, with office at Chicago. He will report to the president.

E. Doul, commercial agent of the Illinois Central at Pittsburgh, Pa., has been transferred to Cleveland, Ohio. J. T. Bridwell, traveling freight agent at Pittsburgh, has also been transferred to Pittsburgh and will report to Mr. Doul. F. H. Law succeeds Mr. Doul.

Fred Wemhoener has been appointed general agent of the American Refrigerator Transit Co. at Kansas City, Mo., succeeding A. H. Crawford, resigned. O. H. Lutteke has been appointed a soliciting agent at St. Louis, succeeding Clifford Day, resigned to go into other business.

O. V. Wilson has been appointed a traveling freight agent of the Georgia, Southern & Florida, with office at Orlando, Fla. T. E. Harris has been appointed a traveling freight agent, with office at Cordele, Ga., and L. C. Shirah has been appointed a soliciting freight agent at Macon, Ga.

The icing facilities and ice houses of the Union Pacific having been taken over by the Pacific Fruit Express Company, J. Van Rensselaer, inspector of refrigeration of the Union Pacific, has been appointed district superintendent of the Pacific Fruit Express Company, with office at Omaha, Neb.

R. G. Norris, traveling passenger agent of the Missouri Pacific-Iron Mountain system at Little Rock, Ark., has been appointed traveling passenger agent at Kansas City, Mo., succeeding E. E. Bleckley, transferred to Wichita, Kan., as passenger and ticket agent. E. R. Jennings succeeds Mr. Norris.

H. M. Wilkins, freight agent of the Houston & Texas Central at Dallas, Tex., has been appointed general agent in the freight department of the Galveston, Harrisburg & San Antonio, with office at Galveston, Tex., succeeding Gentry Waldo, appointed general agent of the Southern Pacific Steamship Company.

W. J. Tremaine, commercial agent of the New Orleans & Northeastern, the Alabama & Vicksburg and the Vicksburg, Shreveport & Pacific at Dallas, Tex., has been appointed a commercial agent of the Cincinnati, New Orleans & Texas Pacific, with office at Cincinnati, Ohio. E. S. Morgan, traveling freight agent at Dallas, succeeds Mr. Tremaine, and L. R. Gardner, soliciting agent at Dallas, succeeds Mr. Morgan.

L. N. Kelso, traveling freight agent of the Alabama Great Southern at Meridian, Miss., has been appointed a commercial agent, with office at Meridian. J. G. Kitchel succeeds Mr. Kelso. E. W. Mihm, soliciting freight agent at Birmingham, Ala., has been appointed a traveling freight agent, with office at Birmingham, succeeding L. E. Sawrie, deceased. The position of soliciting freight agent at Birmingham is abolished.

Engineering and Rolling Stock Officers.

H. M. Levinson has been appointed a roadmaster of the International & Great Northern, with office at San Antonio, Tex.

T. W. Jackman has been appointed master mechanic of the Montana division of the Oregon Short Line, with office at Pocatello, Idaho, succeeding Henry Carrick, retired.

F. J. Allen has been appointed resident engineer of the Missouri & North Arkansas, with office at Eureka Springs, Ark. H. R. Irvine has been appointed general roadmaster, with office at Searcy, Ark.

G. W. Lillie, supervisor car department of the St. Louis & San Francisco, has been appointed superintendent of the new Springfield, Mo., shops. The office of supervisor of car department has been abolished.

J. N. Mowery, whose appointment as assistant master mechanic of the Lehigh Valley at Auburn, N. Y., was recently announced in these columns, was born on December 24, 1873, at Strasburg, Pa. He graduated from Franklin and Marshall College, receiving the degree of B.A. in 1895 and the degree of A.M. in 1899. He also received the degree of M.E. from Cornell University in the same year. Mr. Mowery began railway work with the Chicago, Burlington & Quincy in 1899, and the following year left railway service to become traveling engineer, and later was a draftsman for the American Locomotive Co. He returned to railway work in April, 1903, as draftsman for the New York Central & Hudson River, and was appointed chief draftsman at the West Albany shops of that company in February, 1904. In March, 1905, he was appointed piece-work inspector on the same road and the following July was made assistant engineer of tests, leaving that position in February, 1896, to go to the Lehigh Valley as mechanical engineer, which position he held at the time of his recent appointment.

OBITUARY.

Major Thomas H. Hays, former inspector general in the Confederate Army, and at one time second vice-president of the Pullman Palace Car Co., died November 9, at the age of 72 years.

W. H. Allen, for the past 12 years traffic manager of Arbuckle Brothers, at Brooklyn, N. Y., died November 6 at his home in that city. Mr. Allen was formerly, for about 30 years, connected with the freight department of the Erie.

Charles A. Darlton, formerly and for many years superintendent of telegraph of the Southern Railway, died in New York City, October 16, at the age of 58. Mr. Darlton began work in the railway telegraph service in 1864, and from 1881 was superintendent of telegraph on different roads. He was with the Southern from 1886 to his retirement in 1904.

William W. Kent, receiver of the Chattanooga Southern, died on November 2 at Chattanooga, Tenn., after an illness of several months. He was 56 years old. Mr. Kent was formerly general passenger agent of the Chattanooga, Peoria & St. Louis, chairman of the Southwestern Passenger Association at St. Louis, Mo., and manager of the Galveston, Houston & Northern.

Railroad Construction.

New Incorporations, Surveys, Etc.

Alaska Central.—See Alaska Northern.

Alaska Northern.—According to press reports this company has taken over the property and rights of the Alaska Central, building from Seward, Alaska, north to the Tanana river, 450 miles. The new owners will build a 38-mile branch from mile post 146 to the Matauooska coal fields, as well as a 300-mile branch from Susitna through the Kuskuim country to new gold fields at Iditarod. The line is now in operation from Seward north for about 72 miles. The present southern terminus at Seward is to be changed to a point on Resurrection bay. O. G. Laberee, president, Spokane, Wash. (May 14, p. 1051.)

Atchison, Topeka & Santa Fe.—An officer writes that the double-tracking on the Santa Fe proper has been finished or is under contract between Chicago and Kansas City, Mo., with the exception of the crossings of the Missouri and Mississippi rivers, all of which will be completed this year. In addition, double track remains to be laid between Rothville, Mo., and Carrollton, and between Edelstein, Ill., and Knox. This work when finished will complete the continuous double track from Chicago west to Mission, a station just west of Newton, Kan., about 646 miles. (Oct. 29, p. 827.)

Atlanta, Birmingham & Atlantic.—This company is now laying track from Pelham, Ala., northwest through Bessemer to Mulga, 28½ miles, and expects to have the line in operation about December 1. From Bessemer northeast to Birmingham, about 11 miles, grading work and bridging is under way, and is expected to be finished by April, 1910. The company is at present operating its trains, both freight and passenger, into Birmingham over the Louisville & Nashville from Pelham, and expects to have all the line finished and in operation, with terminals in Birmingham, by April, as well as the branch to the coal mines from Bessemer to Mulga. (Oct. 22, p. 776.)

British Columbia Electric.—An officer writes that contracts are to be let soon for building 2½ miles of single-track from North Vancouver, B. C., up the Lynn valley, as well as for seven miles of suburban line from Vancouver through Burnaby municipality. The lines will reach timber lands and work is to be started as soon as contracts are let. The company is building its own rolling stock and has let contracts for extensions to car building shops at New Westminster, B. C.

Canadian Northern.—An agreement has been made with the British Columbia government, under which, if the general election, to be held this month, is favorable, and the Provincial legislature gives its sanction, the company will build 600 miles of line from Yellow Head Pass, B. C., west to Vancouver, during the next four years, in consideration of a guarantee of interest by British Columbia on bonds to be issued at $35,000 per mile. A government official says that a contract has been entered into with the Canadian Northern for the construction of a line from Yellow Head Pass to Kamloops by way of the North Thompson river, and from Kamloops to Westminster and Vancouver; also from a point near Vancouver to English Blugs, for connection with Victoria; also to build a line from Victoria to Barclay sound. Application will be made for authority to build lines as follows:

Dundee, northerly and easterly to the Winnipeg river.

Portage la Prairie southerly and easterly to Township 2, Rg. 7 E. P. M.

Hartney, westerly to Township 5, Rg. 7 W. 2 M.

Moosejaw, southerly and easterly to Blenfait, with a branch to Roche Percee.

Between Davidson and Disley on the Q. L. L. & Sask. Railway, westerly and northwesterly to the Saskatoon-Calgary line.

Lashburn, westerly to a point between Camrose and Edmonton.

Saskatoon-Calgary line near Township 28, Rg. 6 W. 4 M. to Rocky Mountain House.

Saskatoon-Calgary line near crossing of Red Deer river, northwesterly through or near Innisfall and Rocky Mountain House to headwaters of Brazeau and McLeod rivers and to Yellow Head Pass.

Winnipegosis, southerly to south end of Lake Manitoba.

From a point between Prince Albert and Battleford, near Township 49, Rg. 3 W. 3 M., northwesterly and northerly to Great Slave lake.

From a point east of Lake Manitoba, westerly via the Narrows, to constructed line between Grandview and Roblin.

Canadian Pacific.—An officer of the Esquimault & Nanaimo writes that work is now under way on the extension from Nanaimo, on the east coast of Vancouver island, to Alberni, on the west coast, 58 miles. Contract for all the work has been let to Janse, MacDonnell & Timothy. Track has been laid on 12 miles. There will be about 20 miles of heavy work crossing the summit of the mountain range. Maximum grades will be 80 ft. per mile and maximum curvature 10 deg. The work will include seven steel bridges. H. J. Cambie, chief engineer, Vancouver, B. C. (Oct. 22, p. 776.)

According to press reports from Nelson, B. C., a contract has been given to W. P. Tierney to build at once a line from Hartford junction, B. C., to the Athelstan and Jackpot mines. The line is eventually to be extended through various mining districts.

Carolina, Clinchfield & Ohio.—This company, which recently opened an extension from Bostick, N. C., south to Spartanburg, S. C., 31.1 miles, is working with a day and a night force putting in ballast on an 18-mile section between the large viaduct at Broad river and Spartanburg. This section is expected to be finished in a short time. When this work is finished the roadbed will be ready for heavy rolling stock, including the large Mallet locomotives, of which one is now in use and a number of others are being built. (Nov. 5, p. 896.).

Chicago, Burlington & Quincy.—According to press reports this company is about to begin work on a branch from its Omaha-Denver line at Hudson, 30 miles northeast of Denver, Colo., north to Greeley, 25 miles, from which place a line has been located northeast to Grover, 66 miles east of Cheyenne, on the Omaha-Cheyenne main line.

An officer tells us that an extension of the line now under construction south from Kirby, Wyo., through Thermopolis is to be built east to the Powder river at a point where connection is to be made with the Chicago & North Western. The plans call for building about 100 miles of new line during 1910, which is being built because of the rapid settlement of lands in the Big Horn basin country, where there is within a radius of 300 miles 1,412,000 acres open for irrigation, controlled by the government and private enterprise. The line will provide a through southeastern connection for freight and passenger service. This extension was originally projected south to Shoshoni. (Oct. 29, p. 827.)

Chicago Great Western.—According to press reports this company has secured about 130 acres of land at Stockton, Ill., which is 126 miles west of Chicago. The site is to be used for a new division point, and the improvements will include a new roundhouse and other buildings, also an extensive system of yards. The contract for the preliminary grading has been let to the J. H. Frick Construction Co., Chicago.

Chicago, Milwaukee & Puget Sound.—A branch, it is said, will be built north of Seattle, Wash., to Snohomish county, from a point in lot 2, section 32, township 29, range 5, northerly through the city of Everett to a point on the Snohomish river in section 8 of the same township.

Colorado-Concho.—Under this name a company is being formed by eastern capitalists, associated with residents of Robert Lee, Tex., to build from Robert Lee north to Colorado, about 50 miles.

Columbus & Cincinnati Air Line Traction.—Incorporated in Ohio to build about 100 miles of electric line between Columbus, Ohio, and Cincinnati. The Riggs & Sherman Co., of Toledo, Ohio, the engineers, are now at work making a preliminary survey. The line is to pass through the town of Washington C. H., and Wilmington. The project, it is understood, is not yet fully financed. W. J. Sherman, Toledo, may be addressed. (Oct. 22, p. 777).

DELAWARE & EASTERN.—Bids for building an extension from Schoharie, N. Y., northeast to Schenectady, it is said, are to be opened this week. (Oct. 15, p. 725.)

DENVER & RIO GRANDE.—An officer writes in regard to the newspaper reports that plans are being made to reduce the grade over Cerro Hill, Colo., that there is no truth in the report, and that no surveys are being made with this object in view.

EL RENO INTERURBAN.—According to press reports a contract has been given to the Adams Construction Co. for the completion of this electric line from Yukon, Okla., west to El Reno, 15 miles, and work is under way. (July 16, p. 164.)

ESQUIMAULT & NANAIMO.—See Canadian Pacific.

FERNLEY & LASSEN.—According to press reports this company has been incorporated in Nevada with $5,000,000 capital and will at once start work on a 135-mile line from Fernley, Nev., via Amadee, Cal., and Susanville, through Lassen and Plumas counties, to a junction with the projected Goose Lake & Southern of the Southern Pacific. The new line is understood to be a project of the Southern Pacific. W. R. Scott, president; P. V. Dunn, vice-president, and W. Hood, chief engineer, San Francisco.

IOWA & OMAHA SHORT LINE.—Grading work is said to be under way and it is expected to begin track-laying soon on the section between Council Bluffs, Iowa, and Traynor, 15 miles. George W. Adams & Co., of Walnut, Iowa, are the contractors. The company has opened an office at 410 Fifth avenue, Council Bluffs. M. G. Carter, assistant general manager and general superintendent. (April 2, p. 774.)

KANSAS CITY-MEXICO & ORIENT.—According to press reports a grading contract has recently been let for work on 28 miles south of San Angelo, Tex. Work is to be pushed from San Angelo south to the Mexican border, as well as on the section of 194 miles in Mexico between Sanchez and Fuerte. (Oct. 8, p. 660.

LAWTON & FORT SILL (ELECTRIC).—An officer writes that contracts are to be let about the middle of November for building this line from Lawton, Okla., north via Fort Sill to Medicine park. There will also be 12 miles of street railway in Lawton. The work will include putting up a 30-ft. steel or concrete bridge. Simon Smith, president, and Moore & McClure, engineers, Oklahoma City. (Oct. 29, p. 827.)

LONDON & LAKE ERIE.—Application has been made to the Dominion parliament for incorporation by this company, with a capital of $2,000,000, to build a line between Brantford, Ont., west via Paris, Ingersoll and Woodstock to London. The company also asks permission to acquire or build lines intended to be built by the Southwestern Traction Co., also to operate over existing lines, as well as to operate a line of steamers on Lake Erie from Port Stanley to Cleveland, Ohio. The provision of directors include: W. K. George, G. B. Wood and S. Jones, of Toronto; J. Purdon, of London; Dr. A. McKay, of Ingersoll, and A. E. Thompson, of Cleveland.

LOUISVILLE & NASHVILLE.—Contracts are said to have been let recently to the Callison Construction Co. and to the Gibson-Carr Co., of Middlesboro, Ky., to build a six and one-half mile line between Guthrie, Ky., and Henderson. The contract is said to be worth about $200,000.

MEMPHIS, HELENA & LOUISIANA.—See St. Louis, Iron Mountain & Southern.

MEXICAN ROADS.—Reports from Corpus Christi, Tex., say H. Fernando P. Fagoaga, mayor of Mexico City, Mex., associated with Senator J. Castello and others, controls large sections of land in the state of Tamaulipas, Mex., opposite Brownsville, Tex. Plans are said to be made to build about 125 miles of railway through that section. Col. J. N. Miller, Corpus Christi, it is understood, will have charge of the construction work.

MISSOURI PACIFIC.—An officer writes regarding the reports that surveys are being made for an extension from Bagnell, Mo., south to Springfield, about 85 miles, that construction is not contemplated at the present time and surveys are not being made.

NEW YORK & NORTH SHORE TRACTION.—This company is said to have bought about four acres of land at Bay Side Meadows, L. I., to be used as a site for car barns and a large power house for the line to be built from Whitestone landing to Flushing, as well as that to connect Nassau and Queens counties. Track-laying has been started from the Flushing terminal, also on the extension from Nassau county to Queens. It is expected to have the line in operation between Manhasset and Roslyn this year, and completed to a connection with the Whitestone-Flushing line during 1910.

NORFOLK & WESTERN.—An officer writes that arrangements have been made to build a short branch to be known as the Allisonia branch, about 0.64 miles long, from near Allisonia, Va., up Big Reed island creek to the ore tipple of the Virginia Iron, Coal & Coke Co., above which point the coal company is building several miles of narrow-gage tram track to carry ore to this branch. All of the work is now under way.

NORTH COAST.—Contract is said to have been let to C. H. Boiles, of Spokane, Wash., for the concrete work on the first 20 miles of the section between Spokane and Tekoa, 41 miles, on the Palouse branch. This includes the building of all abutments, culverts, overhead crossing bases and supplementary work. The contract calls for the completion of the work within 15 months. It is said that bids have been asked for grading work on the North Priest Rapids branch. (Oct. 8, p. 662.)

OREGON RAILROAD & NAVIGATION CO.—According to press reports from Portland, Ore., this company will make improvements between Portland and Huntington. The work is to include a tunnel through the Blue mountains and the reduction of the grade over Tellocasset hill, near Baker City, as well as the steep grade between Baker and Huntington. Surveyors are said to be at work for a cut-off between Stanfield and Coyote and surveys will also be made between Huron and Encina.

OREGON TRUNK.—This company, which was originally incorporated in Nevada and is now building a line from a point on the Columbia river south into central Oregon, recently filed articles of incorporation in Washington, with a capital of $5,000,000. The purposes for which the company was organized are stated to be as follows: To build from a point in the state of Washington on the Spokane, Portland & Seattle, south, crossing the Columbia river to Celilo, thence along the Columbia to the Des Chutes river and along that river in a southerly direction to Klamath Falls, Ore. The original incorporation of this road was under the laws of the state of Nevada in February, 1906, and provided for the building and operation of a railway from a point on the Columbia river at or near its confluence with the Des Chutes and along the course of the Des Chutes into central Oregon, the length of such road to be 250 miles. The question of the legal status of the Oregon Trunk Line was raised by counsel for the Harriman Lines last August in injunction proceedings before Judge Bean, of the federal court, at Portland, Ore. The main issue involved conflicting surveys embracing about 12 miles of road in the upper 60 miles of construction work. The Oregon Trunk Line filed maps covering this section of the road in 1906, which were approved by the Secretary of the Interior in July, 1908. The maps of the Des Chutes Railway, the Harriman project, covering the same 12 miles, were filed subsequently. In the injunction proceedings W. W. Cotton, counsel for the Harriman road, insisted that the approval by the Secretary of the Interior of the Oregon Trunk Line map passed no title, because the Oregon Trunk Line was a Nevada corporation and organized under a law which prohibited it from building or owning a road in the state of its creation. Judge Bean did not pass on this question, but merely held that the Des Chutes Railway was not in a position to raise it. It is evident that by reincorporating in Washington the Oregon Trunk Line has tried to clear away all questions as to the legality of its existence. (Oct. 15, p. 727). See article in another column.

PENNSYLVANIA.—Announcement is made that the Pennsylvania will spend $2,500,000 for improvements on the Erie & Ashtabula division. This includes third and fourth track between Lawrence junction and Edenburg; double tracks will

also be laid between Ashtabula and Austinburg and between East Orwell and Gridley.

Pittsburgh & Lake Erie.—According to press reports work has been started on the elimination of a big curve on the main line just below Third street at Beaver, Pa. The work is being carried out in connection with the building of the big bridge over the Ohio river at Beaver, and includes a change in the location of the tracks, which, it is expected, will be ready for service early next year.

St. Louis-Kansas City (Electric).—An officer writes that this company was organized in Missouri, with a capital of $5,000,000, which has since been increased to $15,000,000, and general offices at Kansas City, Mo. The plans call for building a double-track standard gage electric line from Kansas City east to St. Louis, 250 miles, following as near an air line as practicable, also eliminating grades and curves as much as possible. The company intends to install the most modern electrical equipment, with power plant located in coal fields along the line, which will generate electricity for all purposes of operation. Passenger cars are to be operated at a speed of from 40 to 60 miles an hour and provision will also be made to carry feight. D. C. Nevin, president, Denver, Colo.; J. H. Berkshire, first vice-president, Kansas City, Mo.; B. L. Dorsey, second vice-president, Alton, Ill.; H. V. Johnson, treasurer, Denver; C. A. Loomis, general solicitor, Kansas City, and J. H. Reeder, assistant general solicitor, Denver. (Nov. 5, p. 895.)

St. Louis, Iron Mountain & Southern.—Permission has been granted by the Arkansas Railroad Commission for an extension of three years in which to build the Memphis, Helena & Louisiana branch from Marianna, Ark., northeast to Bridge junction, opposite Memphis, Tenn., 55 miles. The line from Marianna to a point on the St. Francis river must be completed by November 1, 1911, and from that point to Bridge junction by November, 1912.

Salem Falls City & Western.—An officer writes that the plans call for a line from Salem, Ore., west via Dallas and Falls City to Black Rock and eventually west to the Pacific coast near Siletz bay, in all about 60 miles. Track has been laid from Dallas west to West Salem, 14 miles. L. Gerlinger, president; S. A. Taylor, chief engineer, Portland. (Nov. 5, p. 895.)

Southern Pacific.—An officer is quoted as saying that second track will be laid from Sacramento, Cal., south to Tracy. See Fernley & Lassen.

Utah Southern.—Incorporated in Utah, with $100,000 capital, to build from Lund, Utah, south to the grand canyon in Arizona. F. A. Dudley, president, of Niagara Falls, N. Y.; V. E. Huntzicker, first vice-president and treasurer; H. C. Edward, second vice-president, and A. H. Peabody, secretary.

Waco, Belton & Georgetown.—The organization of this company has not yet been completed. A projector writes that some preliminary work is in progress. The plans, it is understood, call for a line from Waco, Tex., south via Venton to Georgetown, about 80 miles. E. Rotan, Waco, may be addressed. (Nov. 5, p. 895.)

Western Pacific.—According to press reports from Sacramento, Cal., the last spike was driven on November 1, completing the line from Salt Lake City, Utah, west to Oakland, Cal., opposite San Francisco, 923.7 miles. The formal opening of the line is to take place on January 1, 1910. (Oct. 22, p. 778.)

Winnipeg, Salina & Gulf.—According to press reports a British syndicate has agreed to finance this project. The company plans to build from Winnipeg, Man., south to the Gulf of Mexico. The first section to be built is from Superior, Wis., via Beloit, Great Bend, Kan., Woynoka, Okla., and Matheford, Tex., to Wichita Falls, with an extension from Woynoka to Oklahoma City, Okla. F. H. Taylor and G. E. Graves, at one time with the Philadelphia Trust Co., and J. W. Wagner, formerly with the Milwaukee Southern, are interested. Offices are to be opened in St. Louis, Mo.; Kansas City and Salina, Kan. Early in 1908, under the name of the Winnipeg, Yankton & Gulf, a company, of which H. L. Miller, of Russell, Kan., was president, was formed to build over the same route.

Railroad Financial News.

Alaska Central.—It is said that this property, which was sold to F. G. Jemmett, representing the creditors of the Sovereign Bank of Toronto, has been resold to a newly organized company, the Alaska Northern.

Alaska Northern.—See Alaska Central.

Albany & Susquehanna.—A special dividend of 30 per cent. on the $3,500,000 stock has been declared. The dividend is to be paid from the proceeds of the sum received from the Delaware & Hudson. (Oct. 29, page 829.)

Albany Southern.—Redmond & Co. and J. & W. Seligman & Co., New York, are offering $1,250,000 first mortgage 5 per cent. bonds of 1909-1939 at 97½, yielding about 5⅛ per cent. The Albany Southern is the successor of the Albany & Hudson.

Atchison, Topeka & Santa Fe.—See Cane Belt.

Canadian Northern.—See this company under Railroad Construction.

Cane Belt.—This company, controlled by the Atchison, Topeka & Santa Fe, has called for redemption its entire outstanding issue of $750,000 first mortgage 5 per cent. bonds dated 1901. These bonds were due 1921 but were redeemable at the option of the company after June 1, 1906.

Chicago, Milwaukee & St. Paul.—The company has made application to list on the New York Stock Exchange $50,000,000 4 per cent. debenture bonds of 1909-1934. Last June the company sold $25,000,000 of these bonds to Kuhn, Loeb & Co. and the National City Bank, both of New York, and it is understood that the same bankers have agreed to take $25,000,000 additional as required for building bridges and feeders for the Pacific coast extension (Chicago, Milwaukee & Puget Sound). Of the second $25,000,000, $3,000,000 has thus far been delivered.

Elizabeth River Railway.—The control of this road has been bought by the Norfolk & Portsmouth Belt Line, which is itself controlled by Pennsylvania Railroad interests. The Elizabeth River Railway runs from lumber yards in Norfolk, Va., along about 10 miles of deepwater front of the southern branch of the Elizabeth river.

Grand Trunk Pacific.—See an item in regard to this company in Traffic News.

Illinois Central.—Robert S. Lovett, president of the Union and Southern Pacific, has been elected a member of the committee of law and finance of the Illinois Central, succeeding E. H. Harriman, deceased.

Mexican Southern.—This road has been leased to the Interoceanic of Mexico, and on January 1 the property will be turned over to the National Railways of Mexico for operation. The National Railways controls the Interoceanic. The lease provides for the guarantee by the Interoceanic of 4 per cent. dividends on the £685,045 ($3,425,225) debentures on the £1,000,000 ($5,000,000) common stock. The Mexican Southern main line runs from Puebla, Mex., to Oaxaca, 367 miles.

Montana, Wyoming & Southern.—This company has bought the property of the Yellowstone Park Railroad, sold under foreclosure. The Yellowstone Park road runs from Clark's Ford, Wyo., to Bridger, 30 miles.

Newport & Wickford Railroad & Steamboat Co.—See New York, New Haven & Hartford.

New York, New Haven & Hartford.—This company has bought the property of the Newport & Wickford Railroad & Steamboat Co., which was sold under foreclosure recently. The road, which runs from Wickford Junction, on the New Haven main line, to Wickford Landing, 3½ miles, and the steamboat service, which connects Newport, R. I., with Wickford Landing, is to be operated by the New Haven.

It is understood that the New Haven company has bought

the property of the Tarrytown, White Plains & Mamaroneck, which was sold recently under foreclosure.

NORFOLK & PORTSMOUTH BELT LINE.—See Elizabeth River Railway.

NORFOLK & SOUTHERN.—The property is to be sold on December 7 under foreclosure of the first and refunding mortgage. No upset price is fixed, the court having power to reject any bid which is considered inadequate. The purchaser in addition to the purchase price must also satisfy all claims having a prior lien to the first and refunding mortgage, pay the cost of foreclosure and pay receiver's debts, which include $1,000,000 receiver's certificates.

OLD COLONY RAILROAD.—The Massachusetts Railroad Commission has authorized the issue of $985,000 stock, to be sold at $195, the proceeds to be used to pay $1,912,000 Boston, Clinton & Fitchburg bonds, due January 1, 1910.

PENNSYLVANIA.—The *Commercial and Financial Chronicle* says that the company has decided to pay its dividends in future quarterly instead of semi-annually.

PERE MARQUETTE.—Kissel Kinnicutt & Co., New York, have prepared an analysis of the standing of the Pere Marquette, which they are distributing. A map showing the B. & O., the Cincinnati, Hamilton & Dayton and the Pere Marquette accompanies the circular.

ST. LOUIS & SAN FRANCISCO.—C. R. Gray, second vice-president, has been elected a director, succeeding A. J. Davidson, resigned. C. V. R. Thayer has been elected a director, succeeding his father, Nathaniel Thayer, resigned.

SEABOARD AIR LINE.—The receivership was brought to an end without foreclosure proceedings November 5 and the property turned over to the company.

SECOND AVENUE (NEW YORK).—The Guaranty Trust Co., Redmond & Co. and Strong, Sturgis & Co., all of New York, are offering a block of $1,280,000 first (general) mortgage 5 per cent. bonds dated 1885. These bonds on November 1 were extended for one year pending reorganization of the company, and they are an absolute first mortgage on the property, ranking ahead of $500,000 receiver's certificates authorized last September.

TARRYTOWN, WHITE PLAINS & MAMARONECK.—See New York, New Haven & Hartford.

TOLUCA, MARQUETTE & NORTHERN.—The property of this company is to be sold at auction November 23. The road is at present in the hands of a receiver. Its main line runs from Toluca, Ill., to Granville, 26 miles, with branches, making the total mileage 40 miles.

UNITED RAILWAYS OF ST. LOUIS.—The voting trust for the $24,913,800 common stock, of which the North American Co. is supposed to own about $18,000,000, expired by limitation October 31.

VIRGINIAN RAILWAY.—Edwin S. Marston and W. P. Windsor have been elected directors, succeeding H. H. Rogers, deceased, and F. C. Uhlman.

WASHINGTON, BALTIMORE & ANNAPOLIS.—President Bishop, now one of the receivers, in explaining the receivership, says in part that "without giving a detailed statement of the company's obligations, the cause of the present condition can be summed up by stating that the amount of the company's present liabilities, for which it has not been able to issue securities, is made up almost entirely of the amount which it has been required to put into its construction account, adding thereto the deficit caused by the unusually large percentage of operating expenses under the alternating-current system."

WISCONSIN & MICHIGAN.—Press despatches say that the property of this company, whose main line runs from Iron Mountain, Mich., to Peshtigo Harbor, Wis., is to be sold December 9 to pay a tax claim of $44,579 due the state of Michigan.

YELLOWSTONE PARK RAILROAD.—See Montana, Wyoming & Southern.

Late News.

The New York, New Haven & Hartford is said to be figuring on 15,000 tons of rails.

The Pittsburgh & Lake Erie and the Brooklyn Rapid Transit have each ordered 8,000 steel car wheels.

The Harriman Lines are said to have ordered 20,000 tons of rails from the Tennessee Coal, Iron & Railroad Co.

The Philadelphia & Reading, it is said, will soon build 10 locomotives at its Reading shops. This is not yet confirmed.

The Idaho & Washington Northern has ordered two 22-in. x 28-in. consolidation locomotives from the Baldwin Locomotive Works.

Press despatches say that 14 people were killed and seven injured in a collision on the British Columbia Electric Railway on November 10.

The Great Northern is said to have ordered the 40,000 tons of rails for which it was in the market as mentioned in the *Railroad Age Gazette* of November 5.

The Pressed Steel Car Co., Pittsburgh, Pa., expects to have its Woods Run plant in operation by December 1. The plant has been idle for some time. The plant will employ about 2,500 men and the capacity is to be about 60 freight cars a day.

Contracts are to be let during the next 30 days by the National Railways of Mexico for building about 65 miles of line from Durango, in the state of the same name, west to timber lands at Llano Grande. The work will include one tunnel and one viaduct.

The case of the common stockholders of the Chicago Terminal Transfer, who are protesting against the foreclosure proceedings, which was called for hearing before Judge Kohlsaat in the United States circuit court, Tuesday, has been postponed till November 18.

The Mexican Central is in the market for about 20,000 tons of bridge material. Other bridge orders include: 400 tons for the Chicago & North Western and 200 tons for the Chicago, Milwaukee & St. Paul, both from the American Bridge Co., and 350 tons for the Vandalia, from the Wisconsin Bridge Co.

A full sized Brennan gyroscope monorail car, carrying 40 passengers, was exhibited in London on November 10. It is said to have successfully negotiated 50-deg. curves at 25 miles an hour. The motive power is gasolene-electric. The small model car was described in the *Railroad Gazette* of July 19, 1907.

According to press reports the Canadian Northern has arranged to sell $5,000,000 of bonds, and it is said the company will be able to build about 500 miles of new line each year. It is understood that during 1910 contracts will be let covering the remaining sections to complete a through line from Montreal, Que., west to the Pacific coast.

President W. C. Brown, of the New York Central, announces that the payment of pensions to the employees of that company and its two principal controlled lines, the Lake Shore & Michigan Southern and the Michigan Central, which has long been under consideration, will be begun on January 1 next. Extension of the pension plan to other principal lines of the system is under consideration.

An item in reference to next year's conventions of the Master Car Builders' and American Railway Master Mechanics' Associations at Atlantic City appears in another column. At a meeting of the Railway Supply Manufacturers' Association on Wednesday afternoon, J. D. Conway, Pittsburgh, Pa., chief clerk to the superintendent of motive power of the Pittsburgh & Lake Erie, was elected secretary. It was also decided to charge 40 cents a square foot for exhibit booths on Young's Million Dollar Pier, the price to include Crex matting, signs and telephones. All applications for space should be made to Mr. Conway.

Supply Trade Section.

The offices of the Union Draft Gear Co., Monadnock block, Chicago, have been enlarged by the addition of rooms 547 and 548.

Jason Paige, contracting engineer for the American Bridge Co., New York, has resigned to take a similar position with the Lackawanna Bridge Co., Lackawanna, N. Y.

The Davies Supply Co., Chicago, dealer in steam fitting supplies, is having plans prepared for a building on Ontario street. The site has been leased for fifteen years.

The American Car & Foundry Co. plans to build an addition to its Detroit plant. The building will be one-story high, 60 ft. wide and 1,000 ft. long, and will be of brick and concrete.

Osgood, Bradley & Sons, Worcester, Mass., have let the contract to the McClintic-Marshall Construction Co. for a new power plant. About 1,500 tons of structural steel will be required.

The Bignall & Keeler Manufacturing Co. Edwardsville, Ill., advises that October was the best month of the year with the company. Business is getting better all the while and the stock of pipe machines shows it.

George F. McKay, formerly traffic manager of the Lackawanna Steel Co., New York, has resigned and since November 1 has been connected with Hazard, Mudge & Co., Buffalo, N. Y., with headquarters in New York.

Dr. Ernest J. Berg, who has been with the General Electric Co., Schenectady, N. Y., for a number of years, has been appointed professor of electrical engineering at the University of Illinois, as noted in an item under General News.

Kearney & Trecker, West Allis, Wis., manufacturers of machine tools and milling machinery, have begun work on an addition to the main plant, which will cost about $35,000. The new building is to be 170 ft. x 160 ft. and is expected to be completed by spring.

At the drawing for space at the Third Annual Cement Show, Chicago, February 18-24, 1910, which took place on October 29, in the offices of the Cement Products Exhibition Co., 115 Adams street, Chicago, the entire main floor and annex space in the Coliseum was taken and over 30 concerns were unable to secure space at all.

The John A. Roebling's Sons Co., Trenton, N. J., has ordered from Tate, Jones & Co., Inc., Pittsburgh, Pa., the entire oil-burning equipment for six 30-ton open-hearth steel melting furnaces. The company has also received orders for equipment for one open-hearth furnace for the Lobdell Car Wheel Works at Wilmington, Del., and the equipment for one open-hearth furnace for the Londonderry, N. S., plant of the Canada Iron Corporation.

Three McKeen motor cars, coupled together, left the McKeen Motor Car Company's works in Omaha, Neb., on November 2, propelled by their own power, en route to Portland, Ore. One car is of the 70-ft. type (*Railroad Age Gazette*, January 15, 1909, page 111), and is for the Salem, Falls City & Western, which will put it in service out of Salem. The other two cars have been bought by the Oregon & California and the Oregon Railroad & Navigation, and will be used in Oregon and Washington. To date, 57 McKeen motor cars have been built. Fifty-six are operating in the United States and one in Mexico.

The Dodge Manufacturing Co., Mishawaka, Ind., which has branch offices at Boston, Mass.; New York, Brooklyn, N. Y.; Pittsburgh, Pa.; Philadelphia, Pa.; Cincinnati, Ohio; Chicago, St. Louis, Mo., and London, Eng., has just added Minneapolis, Minn., and Atlanta, Ga., to the list. These two branches will serve the two-fold purpose of local stores and distributing stations for the Northwest and the South. The Minneapolis store is at 202-204 Third street, south, and the warehouse at 312 to 320 First street, north. The agency arrangement with the Minneapolis Steel & Machinery Co. has been discontinued. Burke Richards, former resident salesman at Cleveland, Ohio, has been promoted to manager of the Minneapolis branch. The Atlanta branch and warehouse is at 54 Marietta street. S. L. Dickey, resident salesman at that place, has been appointed manager. No change has been made with any of the agency connections in the south.

John W. Ripley, who, for the past nine years, has been chief engineer of the structural department of John Monks & Sons, has resigned his position with this firm and with Allan Appleton Robbins, formerly principal assistant engineer on the Belmont tunnel, has formed the Robbins-Ripley Company, with offices at 50 Church street, New York. The new firm intends to conduct a general contracting and engineering business. In his former position, Mr. Ripley designed and had charge of many large steamship terminals in New York and other cities, including the Mallory, the Clyde, the Ward, the Munson, the Spanish and many others, and he is still retained by John Monks & Sons as consulting engineer on extensive work in the south. He also retains his interest in the Monks, Ripley Pile Co., owning the Ripley combination pile. Mr. Ripley is a graduate of Cornell University and a member of the American Society of Civil Engineers.

TRADE PUBLICATIONS.

Screw Machines.—The National Acme Manufacturing Co., Cleveland, Ohio, has published a folder calling attention to the growth of its plant and the design of the Acme automatic screw machine.

Belt Conveyors.—Bulletin No. 18, of the Robins Conveying Belt Co., Passaic, N. J., gives engineering data and useful information concerning belt conveyors. It takes up arrangement of conveyors, capacity, cost, detailed dimensions of parts, speed and load factors, weights, etc.

RAILROAD STRUCTURES.

BALLINGER, TEX.—Work is said to have been started on a new passenger station for the Gulf, Colorado & Santa Fe, to cost $28,000.

BALTIMORE, MD.—The new passenger station to be built by the Northern Central in Baltimore is described in another column.

BAY CITY, MICH.—According to press reports plans have been made by the Michigan Central to put up car shops at Bay City. The plans call for a shop 80 ft. x 460 ft. About $30,000 has been appropriated to begin this work.

BIRMINGHAM, ALA.—The St. Louis & San Francisco and the Birmingham Belt Ry. are to build a viaduct at Twelfth avenue.

BRANDON, MAN.—Estimates have been submitted for the construction of a subway under the Great Northern and Canadian Pacific tracks at Brandon, to cost $120,000, and for a bridge over the same tracks, to cost $105,000.

CANON CITY, COLO.—In connection with the building of the new station by the Denver & Rio Grande several additional tracks through the lower yards will have to be laid. To avoid grade crossings surveys are being made, which will be submitted to the city officials for approval, for putting in a subway under the tracks in South Ninth street, to cost about $25,000.

CINCINNATI, OHIO.—The newspapers say that plans for the construction of a subway to connect the business section with the surrounding districts of Cincinnati have been made. The work includes piercing a tunnel under some of the important streets in Cincinnati, and plans have been submitted to the city council. The improvements are to cost between $10,000,-

000 and $15,000,000. It is said the subway and urban traction terminals will be under municipal control.

The question of building a new union passenger station in Cincinnati is under consideration.

DUNKIRK, N. Y.—The Lake Shore & Michigan Southern is said to be planning to put up a new passenger station in Dunkirk. It is understood that the freight house on the north side of East Third street is to be torn down and rebuilt in the east end of the yard, and the new passenger station is to occupy the site of the present freight house.

GOLDEN CITY, MO.—The Oklahoma & Golden City Ry., it is reported, will build five large bridges and a number of small ones.

GUTHRIE, OKLA.—The Atchison, Topeka & Santa Fe, the local street railway company, and the city officials are negotiating for the building of a viaduct over the railway company's tracks at Cleveland avenue.

HAGERSTOWN, MD.—The Western Maryland Ry. plans to build an addition to its machine shop, to be 40 ft. x 50 ft., and to cost about $25,000. A new passenger station is also being planned.

IOWA CITY, IOWA.—The Chicago, Rock Island & Pacific is contemplating the building of a new freight depot, but no action has been taken.

LARAMIE, WYO.—The Union Pacific is to build a 30-stall roundhouse, a 100-ft. electric turntable and additional storage tracks.

MCALESTER, OKLA.—The Missouri, Kansas & Texas is making extensive improvements. In addition to the items previously mentioned, a concrete bridge over Delaware avenue and a viaduct at Washington avenue are under way.

MANCHESTER, GA.—The Atlanta, Birmingham & Atlantic is to begin work at once on general shops to cost $100,000.

MONTGOMERY, ALA.—The Louisville & Nashville is said to be asking for bids for a new freight house, to be 42 ft. by 306 ft., and to cost about $75,000.

NEWBERN, N. C.—The shops of the Norfolk & Southern were damaged by fire November 6, with a loss of about $300,000. All of the buildings, except the paint department, were totally destroyed, together with a number of locomotives.

NEW YORK.—The Williamsburg bridge over the East river, connecting the Borough of Manhattan with the Borough of Brooklyn, is to have the shore spans strengthened, at a cost of about $500,000.

QUEBEC, QUE.—According to press reports bids are wanted by L. K. Jones, secretary of the Department of Railways and Canals, at Ottawa, Ont., up to November 15, for the removal of the Quebec bridge wreckage, and additional bids are wanted up to November 30 for building the substructure of the Quebec bridge. The general specifications and form of tender will be ready about November 20. Preliminary information can be obtained at the Quebec Board of Bridge Engineers, Canadian Express building, Montreal.

SAN ANTONIO, TEX.—The Southern Pacific is contemplating an addition to its passenger station, to cost about $100,000.

SAN PEDROS, CAL.—The San Pedros, Los Angeles & Salt Lake has recently completed a Scherzer rolling lift bridge.

STOCKTON, CAL.—An officer of the Southern Pacific is quoted as saying that large steel warehouses, freight sheds and office buildings will be put up at Stockton.

STOCKTON, ILL.—See Chicago Great Western, under Railroad Construction.

TERRE HAUTE, IND.—The newspapers say that the Pennsylvania is planning to put up large shops, to cost $2,000,000, in Terre Haute, on which work is to be started early next year. The improvements are to include a machine shop. A 25-stall roundhouse is now under construction. The company, it is said, has bought about 120 acres of land east of the city, where extensive yards are to be laid out. (July 30, p. 218.)

VAN BUREN, ARK.—The St. Louis & San Francisco, according to press reports, will rebuild its bridge over the Arkansas river.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

The Chicago & North Western is figuring on 100 locomotives.

The Intercolonial has ordered 10 consolidation locomotives from the Canadian Locomotive Co.

The Carolina, Clinchfield & Ohio is figuring on 10 Mallet locomotives and three passenger locomotives.

The Chicago, Burlington & Quincy has ordered from the Baldwin Locomotive Works 50 Pacific passenger locomotives.

The Baltimore & Ohio, as mentioned in the *Railroad Age Gazette* of October 29, has ordered 50 simple consolidation locomotives from the American Locomotive Co.

General Dimensions.

Weight on drivers	194,000 lbs.
Total weight	217,000 lbs.
Cylinders	22 in. x 30 in.
Diameter of drivers	60 in.
Type of boiler	Straight
Working steam pressure	205 lbs.
Heating surface, tubes	2,612.8 sq. ft.
" " firebox	179.4 "
" " total	2,792.1 "
Tubes, number	280
" outside diameter	2¼ in.
" length	15 ft. 8¾ in.
Firebox, type	Wide
" length	108⅛ in.
" width	75¼ "
" material	open-hearth steel
Grate area	56.24 sq. ft.
Tank capacity for water	7,000 gals.
Coal capacity	15 tons

Special Equipment.

Axles	Open-hearth steel
Boiler lagging	85 per cent. magnesia
Brakes	West. E. T. No. 6 Am. Eq. Driv. Brake
Brake-beams	Diamond special
Brake-shoes	A. B. S. & F. Co.
Driving boxes	Cast steel; Elvin lubricator
Headlight	Dressel
Journal bearings	B. & O. standard
Piston and valve-rod packings	U. S. Metallic
Safety valve	Two 4-in. Coale
Sanding devices	Hanlon
Sight-feed lubricators	Nathon
Staying	Radial
Steam gages	Ashcroft
Tubes	Charcoal iron
Valve gear	Walschaerts
Wheel centers	Cast steel

The Terminal Railroad Association of St. Louis has ordered ten 0-6-0 switching locomotives from the American Locomotive Co. This order includes the five locomotives mentioned in the *Railroad Age Gazette* of October 15.

General Dimensions.

Weight on drivers	141,000 lbs. (estimated)
Cylinders	20 in. x 26 in.
Diameter of drivers	51 in.
Type of boiler	Straight
Working steam pressure	200 lbs.
Heating surface, tubes	1,744 sq. ft.
" " firebox	170 "
" " total	1,914 "
Tubes, number	323
" outside diameter	2 in.
" length	10 ft. 5 in.
Firebox, type	
" length	108 $\frac{3}{16}$ in.
" width	42⅛ "
" material	Open-hearth steel
Grate area	31.5 sq. ft.
Tank capacity for water	5,000 gal.
Coal capacity	8 tons

Special Equipment.

Brakes, brake-beams and brake-shoes	Am. Brake Co.
Couplers	Climax
Driving boxes	Steel
Headlight	Company's standard
Injector	R-Simplex; L-Seller's Non-Lift.
Oil boxes	Symington
Piston and valve-rod packings	Company's standard
Safety valve	Ashton
Sanding device	Leach
Sight-feed lubricators	Nathan bull's-eye
Springs	Company's standard
Staying	Radial
Steam gages	Ashcroft
Tubes	Charcoal iron
Valve gear	Stevenson-Richardson slide valve
Wheel centers	Cast steel, 44 in.

The Charlotte Harbor & Northern has ordered three ten-wheel and two consolidation locomotives from the Baldwin Locomotive Works.

The Atchison, Topeka & Santa Fe is to convert a number of prairie locomotives into Mallets. The work of rebuilding is to be done at the Topeka shops.

The Lehigh Valley has ordered from the Baldwin Locomotive Works 10 ten-wheel locomotives and three six-wheel switchers, as mentioned in the *Railroad Age Gazette* of October 29.

The Chicago Junction Railway has ordered from the American Locomotive Co. three switch engines in addition to the four mentioned in the *Railroad Age Gazette* of October 29, and also one for the Chicagc River & Indiana, making eight in all.

The Kansas City Belt has ordered six six-wheel switch engines from the Baldwin Locomotive Works, as mentioned in the *Railroad Age Gazette* of October 29. Delivery is specified for January, 1910. The general dimensions are:

Weight on drivers	156,000 lbs.
Total weight	156,000 lbs.
Cylinders	20 in. x 26 in.
Diameter of drivers	51 "
Type of boiler	Straight
Working steam pressure	205 lbs.
Heating surface, tubes	1,866 sq. ft.
" " firebox	190 "
" " total	2,056 "
Tubes, number	345
" outside diameter	2 in.
" length	10 ft. 5 "
Firebox, length	120 "
" width	40 "
Grate area	33.3 sq. ft.
Tank capacity	5,500 gals.
Coal capacity	9 tons

The special equipment includes:

Axles	Steel
Bell ringer	Golmar
Boiler lagging	Johns-Manville
Brakes	Westinghouse
Couplers	Sharon
Driving boxes	Steel
Injectors	Ohio
Piston rod and valve packing	U. S. Metallic
Safety valve	Crosby
Sanding device	Leach
Sight-feed lubricators	Chicago
Springs	Standard Steel Co.
Staying	Radial
Steam gages	Crosby
Tires	Standard
Tubes	Charcoal iron
Wheel Centers	Steel

The locomotives are also equipped with Chicago flange lubricators.

CAR BUILDING.

The Staten Island Rapid Transit Co. is in the market for 11 coaches.

The Armour Car Lines are building 200 refrigerator cars and expect soon to build 200 more.

The Carolina, Clinchfield & Ohio is said to be in the market for 12 coaches. This is not yet confirmed.

The Atchison, Topeka & Santa Fe has ordered 10,000 freight cars from the American Car & Foundry Co.

The Norfolk & Southern has ordered two 61-ft. baggage cars from the Harlan & Hollingsworth Corporation.

The Cudahy Refrigerator Line is building 200 refrigerator cars. This includes the 100 mentioned October 15.

The Delaware, Lackawanna & Western has ordered 500 box cars and 500 gondola cars from the American Car & Foundry Co.

The Pennsylvania is figuring on 5,000 cars for the Lines East and 5,000 for the Lines West. The cars are understood to be 70-ton hopper cars.

The Chicago & North Western has increased its order with the American Car & Foundry Co. for ore cars for delivery next May from 500 to 1,000.

The Seaboard Air Line has ordered 1,000 ventilated box and 25 stock cars from the Pressed Steel Car Co., five express cars, four mail and baggage, three vestibuled day coaches and three passenger and bagage cars from the Barney & Smith Car Co. This equipment was mentioned in the *Railroad Age Gazette* of October 22. The box cars will have steel underframes, will have a capacity of 30 tons and will weigh approximately 40,000 lbs. The following are the dimensions: Over-all, length, 37 ft. 10 in.; width, 9 ft. 1¼ in.; height, 12 ft. 8$\frac{3}{16}$ in.; inside, length, 36 ft.; width, 8 ft. 2½ in.; height, 8 ft. The stock cars will have steel underframes, will be of 30 tons capacity and will weigh approximately 38,000 lbs. They will have the following dimensions: Over-all, length, 37 ft. 10 in.; width, 9 ft. 7/8 in.; height (over run boards), 12 ft. 8$\frac{3}{16}$ in.; inside, length, 36 ft.; width, 8 ft. 5/8 in.; height, 8 ft. 3/8 in. The following special equipment applies to the box and stock cars:

Axles	M. C. B.
Bolsters, body	Pressed steel
Bolsters, truck	American Steel Fdy. on box cars; Cast steel on stock cars
Brakes	Westinghouse
Brake-beams	Simplex
Brake-shoes	Am. Brake-Shoe & Fdy. on box cars Cast steel on stock cars
Brasses	Ajax
Couplers	Simplex
Draft gear	Farlow
Dust guards	Wood
Journal boxes	Symington
Paint	Seaboard Air Line standard
Roofs	Murphy's O. S. Metal
Side bearings	Seaboard Air Line standard
Springs	Railway Steel-Spring
Trucks	Andrews side frames
Wheels	33-in. cast iron

The passenger equipment will all have wood bodies and composite wood and steel underframes. The express cars will weigh 104,700 lbs.; the mail and baggage cars, 116,300 lbs.; the day coaches, 115,000 lbs., and the passenger and baggage cars, 111,200 lbs. All the cars have the same inside dimensions: Length, 69 ft. 2⅞ in.; width, 8 ft. 10⅞ in.; height, 9 ft. 3$\frac{7}{16}$ in. The over-all width and height is the same for all cars: Width, 9 ft. 9⅝ in.; height, 14 ft. 1⅞ in. The over-all lengths are as follows: Express and mail and baggage cars, 71 ft. 6 in.; day coaches, 76 ft. 11 in., and passenger and baggage cars, 74 ft. 4½ in. The day coaches have a seating capacity of 84 and the combination passenger and baggage cars seat 44 in the passenger compartment. The following special equipment applies to all the passenger cars except where noted:

Axles	M. C. B.
Bolsters	Commonwealth double
Brakes	Westinghouse
Brake-beams	Hercules
Brake-shoes	Cast steel
Brasses	Ajax
Couplers	Columbia
Curtain fixtures	National; On coaches and passenger-baggage cars only
Curtain material	Pantasote; On coaches and passenger-baggage cars only
Door fastenings	Seaboard Air Line standard
Draft gear	Seaboard Air Line standard
Dust guards	Symington
Heating system	Gould; Safety on express cars
Journal boxes	Symington
Lighting system	Safety; Seaboard Air Line on exp. cars
Paint	Seaboard Air Line standard
Platforms	Standard steel
Roofs	Seaboard Air Line standard
Trucks	Seaboard Air Line six-wheel
Ventilators	Seaboard Air Line standard
Vestibules	Pullman wide;
Vestibule diaphragms	Carvest;
Vestibule trap doors	King; On coaches and comb. pass. and bagg. only.
Wheels	36-in. rolled steel
Window fixtures	National on coaches; S. A. L. stand. on comb. pass. & bagg; none on others

The Toledo & Ohio Central has ordered 500 steel underframe, 30-ton, box cars from the Pullman Co., as mentioned in the *Railroad Age Gazette* of October 29. The cars will weigh about 36,000 lbs. and will have the following dimensions: Over-all, length, 37 ft. 7¼ in.; width, 9 ft. 5½ in.; height, 13 ft. 3⅝ in.; inside, length, 36 ft.; width, 8 ft. 6 in.; height, 8 ft.

Special Equipment.

Axles	M. C. B., 4¼ in. x 8 in.
Bolsters, body	Steel
Bolsters, truck	Simplex
Brake-beams	Acme (Simplex)
Brake-shoes	Street's (steel back)
Brasses	M. C. B.
Couplers	Sharon
Doors	Side
Door fastenings	National Safety
Draft gear	Miner tandem
Dust guards	McCord
Journal boxes	McCord
Paint	Hardy brown metallic
Roofs	Excelsior outside metal roof
Side bearings	Woods single roller
Springs	Railway Steel-Spring
Trucks	Andrews cast steel side frames
Wheels	33-in. cast iron

The cars will also have steel carlines, Carmer coupler release rigging, and 50 of them will have 8-ft. side doors.

The Northern Pacific has ordered 100 freight refrigerator and 100 passenger refrigerator cars from the American Car & Foundry Co., and 500 fifty-ton coal cars from the Pressed Steel Car Co.

The Kansas City Belt has ordered 225, all-wood, 30-ton, rebuilt flat cars from the Hicks Locomotive & Car Works. The cars are 34 ft. 6 in. long and 8 ft. 11½ in. wide. Delivery is specified for January, 1910.

The Great Northern has ordered 1,000 ore cars from the Western Car & Foundry Co., as mentioned in the *Railroad Age Gazette* of October 15. The cars are to be all steel, of 50 tons capacity, and will weigh 32,000 lbs. The inside measurements are: Length, 20 ft. 3¾ in.; width, 7 ft. 10 in.; height, 7 ft. 10 in., and the over-all measurements: Length, 23 ft. 10 in.; width, 9 ft. 2½ in.; height, 9 ft. 2¼ in. The special equipment will include:

Axles	5½ in. x 10 in., M. C. B. Steel
Brake-beams	5-in. I-beams
Brasses	5½ in. x 10 in. M. C. B.
Couplers	Sharon
Draft gear	Farlow
Journal boxes	5½ in. x 10 in., M. C. B. mall. iron
Side bearings	Plain friction bearings
Wheels	33-in. 700-lb. cast iron

The cars are to be delivered February 10, 1910.

The Long Island Railroad has ordered 30 all-steel motor cars as follows: Fifteen combination passenger and baggage from the American Car & Foundry Co. and 15 baggage from the Standard Steel Car Co. The combination cars will carry 51 passengers and will measure 57 ft. 7⅜ in. long and 9 ft. ⅞ in. wide, inside, and 65 ft. 4¾ in. long, 9 ft. 11½ in. wide and 13 ft. high, over all. The baggage cars will measure 60 ft. 5¼ in. long and 9 ft. ¾ in. wide, inside, and 64 ft. 5¾ in. long, 9 ft. 11½ in. wide and 13 ft. high, over all. Bodies and underframes will be of steel. The special equipment includes:

Axles	Motor, carbon steel; trailer, open-hearth steel (combination cars); carbon steel (baggage)
Bolsters, truck	Steel
Brakes	Westinghouse
Brake-shoes	Trailer, cast iron; motor, A. B. S. & F. Co. (combination.) American Brake-Shoe & Foundry Co. (baggage)
Brasses	Ajax metal
Couplers	Pitt passenger
Curtain fixtures	National Lock & Washer Co.
Curtain material	Pantasote
Doors	Steel (baggage)
Draft gear	Westinghouse
Dust guards	Long Island R.R. standard
Heating system	Electric
Journal boxes	Symington
Lighting system	Electric
Platforms	Steel
Roofs	Steel
Seat covering	Rattan (combination)
Springs	Union Spring & Mfg. Co.
Trucks	Steel, Kiesel type
Ventilators	Deck sash
Vestibules	Steel (combination)
Vestibule trap doors	Steel, with Edwards fixtures (combination)
Wheels	Rolled steel
Window fixtures	O. M. Edwards Co. (combination)

MACHINERY AND TOOLS.

The Illinois Steel Co. will build an addition to its warehouse at the North Chicago plant. The new building will be 250 ft. wide and 400 ft. long. New equipment will include nine 10-ton traveling cranes and a number of cutting tools.

Among orders recently received by the Philadelphia plant of the Link-Belt Company, Philadelphia, Pa., are the following: Georgia—Machinery for locomotive coaling station. Ohio—Several Maximum Silent chain drives. Illinois—Miscellaneous machinery for locomotive coaling station. Indiana—Maximum Silent chain drives. Massachusetts—Industrial railway system; number of Maximum Silent chain drives. New Jersey—Two complete retail coal pocket equipments; coal elevators and conveyors; miscellaneous coal handling machinery. New York—Several orders for Maximum Silent chain; gravity discharge conveyors; miscellaneous coal and ashes-handling machinery; two reversible truck hauls. Pennsylvania—Peck carrier outfit; conveyors, Maximum Silent chains; coal handling machinery; coal elevator for foundry; roller flight conveyors; ashes chutes and gates; sand handling machinery for foundries; locomotive coaling station outfits, two jobs; elevator for rice coal. Virginia—Locomotive coaling station. Washington, D. C.—Conveyor for handling trucks. West Virginia—Car puller and flight-conveyor outfit. Export—Massacuite conveyor; single strand chain and bucket elevator; Renold roller chain; Maximum Silent chain; mud conveyor; water elevators; bucket conveyors; screw conveyors.

IRON AND STEEL.

The Fourth Avenue Subway, New York, now under contract, will, it is estimated, require from 35,000 tons to 50,000 tons of steel.

The Birmingham & Edgewood Electric Co., Birmingham, Ala., has ordered 400 tons of open hearth rails from the Tennessee Coal, Iron & Railroad Co.

The Winston-Salem Southbound, Winston-Salem, N. C., is said to have ordered 3,500 tons of rails from the Carnegie Steel Co. and 2,000 tons from the Bethlehem Steel Co.

The Carnegie Steel Co. will build a finishing mill at Girard, Ohio. The mill will have a capacity of 30,000 tons a month, to be increased ultimately to 60,000 tons. Electric power generated by producer gas engines will be used.

General Conditions in Steel.—A number of railways have not yet covered their rail requirements for the first part of next year and many are expected in the market this month. The American Bridge Co. during October booked orders for 33,000 tons of finished structural steel. The demand for raw material is strong, and immediate shipments can be had only by paying large premiums.

The Dictograph.

The Dictograph system is a system of intercommunication for offices, factories, etc. One instrument is the master station and there can be any number of sub-stations. The sensitive receivers and transmitters make it possible to speak in an ordinary tone some distance from the transmitter, while at the other end the voice is correspondingly audible some distance from the apparatus.

This system saves time and results in a number of conveniences. Connection with any sub-station is made by merely pressing the proper key at the master station. This completes the connection, there being no delay of taking down the receiver and waiting for a connection to be made at some switchboard. The whole conversation can then be distinctly heard throughout the room where the master station is and the room where the sub-station is. Taking down the small receiver, however, at either station and holding it to the ear

Dictograph Master Station and Sub-Station.

makes the conversation private, as it disconnects the magnifying horns so that the answering voice can only be heard in the small receiver. With such a system letters or memoranda can be dictated during a conference without calling a stenographer into the room. The master station may be put in communication with one or all of the sub-stations at one time, so that if the heads of departments have sub-stations the executive officer at the master station may call them all into consultation at once without any man leaving his desk. In this case, of course, each hears what all the others say. Intercommunicating master stations may be installed where there are more executive offices than one.

The master station instrument is 11¾ in. x 6¾ in. x 6¼ in., and may be mounted on a bracket or set permanently in the rear of a desk. The sub-stations are 4¼ in. x 5½ in. x 3⅛ in. The machines are leased and maintained by the National Dictograph Co., New York.

Lovell Window Operator.

The pivoted sashes in the series of units in the side walls and clearstory of the locomotive shops of the Delaware, Lackawanna & Western at Scranton, described last week in this paper, are handled by the Lovell window operator, made by the G. Drouve Company, Bridgeport, Conn.

The specifications called for pivoted metal sash five tiers high in the side walls, and another line in the clearstory. The control of the first line is by individual automatic closing chains with fusible links. The second, fourth and fifth tiers, the third being fixed sash, are controlled by the Lovell window operator, in lengths of 52 to 168 ft. each, 30 to 40 sashes in each run, a convenient location being selected within reach from the floor for the control of this operating chain. A total of 7,578 lineal feet of Lovell window operator is required to control the large number of sashes in this building, and the number of operating points, there being 73, is considerably reduced by the adoption of this type of sash-controlling apparatus.

The principle of this device, which makes possible the handling of lengths mentioned, is a straight push and pull, secured by connecting two continuous lengths of pipe, supported by anti-friction brackets in two racks, which are separated and operated by a pinion on a shaft and controlled by a 24-in. to 48-in. wheel, operated by chain at floor level. Two arms are attached to each sash and, in turn, by open couplings to the pipe lines. The rolling movement of the pinion and the equal push and pull given the continuous line of shaft or connected pipes in turn push out the two arms attached to the sash, the thrust being equalized by the simultaneous operation of the two arms; the opposite motion pulls the arms inward and closes the sash. As each sash has the same power and no lost motion occurs at any place on the line, the sashes open equally and close tightly. At any position the sashes are locked so that wind pressure cannot close them, the horizontal pipes acting as a brace to withstand any severe blow. Lines of 300 ft. are just as easily controlled as 100-ft. lines, and such installations can be seen that have been in operation over five years with practically no repair or adjustment. As rigid brackets are used, one on either side of the sash with horizontal pipe across the face of sash, the power that can be applied is considerable. This proves of special advantage when windows are slightly bound by ice or weather. The working parts are few, the rack and pinion being cast and the universal coupling on arms having brass to iron connections to prevent rusting together. The brackets which support the pipe have four small wheels, mounted on brass bearings, at each opening through which the pipe passes. These serve as guides and prevent friction.

There are 200,000 ft. of this apparatus in service in shops in this country. It has to stand hard service. A machine tool has its individual operator, who becomes responsible for its care and upkeep, but almost anyone is likely to open or close the windows, and it is not unusual that oiling the working parts is never thought of; or if so, put off for another day, that never comes. The Lackawanna has made previous installations of this operator in the shops at Kingsland, East Buffalo and Scranton.

Details of Lovell Window Operating Device.

Some New Scherzer Rolling Lift Bridges.

The single-track center pier swing bridge of the Baltimore & Ohio over the Cuyahoga river at Cleveland, Ohio, is being replaced by a double-track Scherzer rolling lift bridge having a movable span of 200 ft. from center to center of bearings. This bridge will be the longest double-track single-leaf bascule bridge yet constructed. Last year a single-track Scherzer bridge having a movable span of 230 ft. was completed for the Baltimore & Ohio, replacing a center pier swing bridge on the west channel of the Cuyahoga river.

The Seaboard Air Line has recently completed a single-track Scherzer rolling lift bridge having a movable span of 196 ft. across the navigable waterway to its new wharves and docks at Tampa, Fla. Another Scherzer rolling lift bridge is being constructed by this railway across the Savannah river, replacing a center pier swing bridge.

The San Pedro, Los Angeles & Salt Lake has recently completed and placed in service a single-track Scherzer bridge across the San Gabriel river at San Pedro Harbor, Cal., this being said to be the longest span bascule bridge on the Pacific coast.

A Scherzer bridge was recently selected and placed under contract for construction as the movable portion of the Galveston causeway. The railways using this bridge will be the Southern Pacific, the Santa Fe and the Gould systems, and the Galveston & Houston Electric Railway. This bridge is built to accommodate highway traffic also.

Among the foreign orders received by the Scherzer Rolling Lift Bridge Co., Chicago, is one for a bridge for the Buenos Ayres Great Southern to cross the Riachuelo river at Buenos Ayres, Argentina; one for an electric railway and highway bridge for the city of Dublin, Ireland, and one for a bridge to cross the Lachime canal, Canada, for the use of the Canadian Pacific.

The order for the bridge at Buenos Ayres is the third received from the Buenos Ayres Great Southern, and is a result of the satisfactory completion and operation of the first double-track bridge of the Scherzer type placed in service a short time ago. The traffic of this railway is growing so fast that a second double-track span for use in connection with the first structure is now needed. It has been manufactured in the bridge shops in England, and will soon be erected at Buenos Ayres beside the present double-track span, the two double-track spans side by side forming one four-track bridge to be operated jointly or separately as desired. The possibility of adding single, double or multiple-track bridges to accommodate constantly increasing traffic is one of the advantages of the Scherzer rolling lift bridge, as compared with the center pier swing bridge, which must be removed and replaced with a new bridge as soon as growing traffic requires additional tracks.